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The Health Bulletin

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JANUARY, 1955

No. 1



GUILFORD COUNTY HEALTH CENTER,
GREENSBORO, NORTH CAROLINA

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THE Health Bulletin



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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

PAPER PRESENTED AT NORTH CAROLINA PUBLIC HEALTH ASSOCIATION MEETING Raleigh, North Carolina, September 23, 1954

L. C. AMOS

Chairman of Guilford County Commissioners,
Past President of N. C. County Commissioners Association,
Greensboro, North Carolina

Nearly everyone today accepts the idea that organized public health service is one of the fundamental responsibilities of government in our society. It is true that opinions differ as to what proportions of public health responsibility should properly be borne by Federal, by state, by county, and by municipal government. However, the basic theory of governmental responsibility for protecting the public health has advanced in practice to the point that modern American government at every level is now engaged in some part of the work—the Federal government through the United States Public Health Service and related agencies, the state government through the State Board of Health, and the local units through district, county, and sometimes municipal health departments.

Development of State Governmental Responsibility for Health In North Carolina

The first substantial piece of health legislation applicable to the territory which is North Carolina was enacted in 1712 by the "General Assembly" of

the Province of Carolina and was entitled "An Act for the More Effectual Preventing of the Spread of Contagious Distempers." It was of course a maritime quarantine law and appointed a "Commissioner for Enguireing into the State of Health" of persons arriving at ports in the province, particularly at Charleston.

In the 241 years between the General Assembly of 1712 and the General Assembly of 1953 hundreds of pieces of health legislations, most of them aimed at "The more effectual preventing" of one or another of a myriad of threats to the public health, were spread upon the statute books of North Carolina during its progress from crown colony to sovereign state.

The early statute in the field of maritime quarantine regulation was followed during the next century and a half by other statutes on the same subject, but the seed thus planted did not quickly ripen into general recognition of governmental responsibility for public health. In terms of sheer volume and number, comparatively few of our statutes enacted prior to the Civil War had anything to do with

health. Taken altogether, the statewide laws for protection of the public health in effect at the beginning of the Civil War added up to not more than three or four pages of printed matter and provided for no governmental agencies to enforce them.

During the two decades following the Civil War state boards of health in roughly the modern pattern began to be established throughout the country. North Carolina joined the movement in 1877 by enacting a law designating the entire membership of the State Medical Society as a state board of health, to act through a health committee established by the Society—with an annual state appropriation of \$100 for its expenses.

Two years later this unwieldy arrangement was terminated by a statute creating a nine-member Board of Health which was to be a regular department of the state government.

But it was not until 1909 that the board acquired the services of its first full-time health officer and administrator, thus beginning the development of a state health agency staffed by professional men and women working under the general direction of the Board of Health.

Development of Local Governmental Responsibility for Health in North Carolina

The pattern of statutory development of organized public health work at the local level was a similar one. It is true that town government from earliest colonial days had to concern itself with threats to community health. But it is also true that *organized* public health work in the modern sense developed at the local level largely during the period since the Civil War and under a statutory pattern paralleling that of state health work.

North Carolina's first statute providing for a statewide system of county boards of health was enacted in 1879, when the legislature decreed that each county should have a county board of health composed of all the practicing physicians in the county, plus the

chairman of the board of county commissioners, the mayor of the county town and the county surveyor. This board was as unwieldy for administrative purposes as the original state board had been. Like the old state board, the 1879 county board functioned in practice as something on the order of a medical "Vigilante committee," organized to deal with epidemics, nuisances and similar urgent threats to the community's health, usually after they had already begun—rather than as an agency administering laws and regulations aimed at preventing such disasters.

It was not until 1911 that the county board of health statute was first expressed in substantially its present form, providing for a seven-member board composed of both medical and lay members. However, for most of the state's counties, the formal statutory change had little immediate effect on the type of health work being locally administered. The only full-time county health service in the state by 1911 was that of Guilford County, which was established in that year (first in the state and second in the nation.) The year 1911 thus marks the beginning of organized full-time county health work in North Carolina. It was not until 1949 that the state reached the 100 per cent mark with respect to full-time local health service in all its counties.

Incorporated cities and towns in North Carolina have had explicit statutory authority under statewide laws since 1893, and under particular town charter provisions since colonial days, to tax and spend, adopt regulations and impose penalties in the interest of the public health. However, except in a decreasing number of the more populous centers, most of the state's almost 400 incorporated municipalities have left organized health work to the counties and districts.

Suppose you should stop any average citizen on the street, or on the farm, and ask him who takes care of his family's health. He would probably answer, "Why, my wife and physician

and dentist." The matter-of-fact tone of his voice would tell you that he has taken for granted the many other services that your public health department and other health agencies make possible in addition to those of his private physician and dentist. Keeping watch over Mr. North Carolina Citizen and his family is the health department's responsibility.

Beginning before Baby Citizen is born, he is of interest to the Health Department. The prenatal blood test required of every expectant mother is made in the laboratory of the health department. Should an expectant mother be unable to afford a private physician, she may visit the prenatal clinic at the health department.

The birth of Baby Citizen and every baby in North Carolina is of concern to the health department. All births are reported to the Vital Statistics Division of the Health Department.

The public health nurse under the direction of the family physician will visit any home and instruct the mother in care of the baby.

The Health Department, with the cooperation of local physicians and school officials, conducts pre-school clinics in which the children are examined for observable defects and determines that the necessary immunizations have been completed.

Mr. and Mrs. North Carolina can send their approximately one million children off to school each day feeling confident that school buildings and grounds are free of insanitary health hazards and that the food served them in school cafeterias is prepared and served in a safe and sanitary manner.

One of the major health problems affecting children in North Carolina is dental defects. Some of the counties are giving special attention to this matter by employing full-time dentists to work in cooperation with school officials and the local dental societies. Wonderful results are being attained, and without a doubt this phase of public health should be expanded.

One shudders at the thought of what the results of venereal disease

would have been had there been no public health program to deal with this problem. Through the public health program of three-fold-nature, embracing education, case-finding and treatment, venereal diseases are being controlled and progress is being made toward their elimination.

Through public health programs, with the cooperation of the medical profession, clinics are being conducted, open to all citizens for the purpose of detecting cancer and diseases of the heart before it is too late to do something about them.

North Carolina citizens should be told clearly and often of the fact that public health touches and benefits each and every one each day of our lives, in such ways as: meat inspection before and after the animal is killed; inspection and approval of all public eating places and food handling establishments; the program of rabies control in connection with domestic animals, and the inspection and approval of sewage disposal, septic tanks and pit toilets.

What I have said about the public health program is not news to you, and I have not intended that it be. My purpose is to impress upon you the importance of keeping the public informed as much as possible as to the value of the health department to each and every citizen of North Carolina.

It is my opinion that a good job of public relations could be done by each local health department in making a special effort to see that its board of county commissioners is at all times well informed about the health program and its importance and that the local health organization is set up on a businesslike basis, with a minimum of lost motion. It is also important to keep in close touch and develop good relations with the local press, as this is a health department's greatest asset in keeping the public informed. Don't use top sergeant methods in dealing with problems that arise in connection with minor violations, remembering that all the public does not know the importance of these matters

as you do.

Public health in North Carolina, you might say, is at a cross-road. A financial problem faces us as a result of the loss of certain Federal funds. Which way shall we go? I am optimistic. I believe we can and will go forward. When you consider the State budget asking for \$3,135,637.00 for 1955-57, which is \$690,000 greater than the current budget, largely to offset the reduction in Federal funds, and further consider the fact that this asking represents about 78 cents per capita cost for the job being done by public health, you and our legislature will agree, I believe, that is a good buy.

It is my considered opinion that North Carolina citizens get as much, or more, benefits from their dollar spent for public health as from any other function of local and state government. We must not stand still in this important job, but rather we must go forward. Remember, to stand still is to go backwards.

I want to take this opportunity to express to each of you here, and to each and everyone engaged in public health work in this grand old North Carolina, my personal thanks to you and my admiration of you for the part you have played and are now playing in protecting my family's health and mine, and that of every citizen of this state. Your pay is by no means all the compensation you receive for a job well done. I know you and all those engaged in public health that are not here get a great deal of satisfaction

from being engaged in this great work and thereby being a member of God's great work in guarding and protecting the health of His people.

When I reflect back over the past forty years of North Carolina's history and think of the wonderful leadership we have had and the splendid progress that has been made in public health and public schools, the social, industrial, and agricultural progress, I am reminded and feel somewhat like the old Negro I once heard of, who was somewhat over-emotional and had a habit of losing control at church services and going into a shouting spree. This disturbed the minister and the services so much that the pastor appointed a committee of two to call on the shouting brother and inform him of their problem and ask him to try to control his enthusiasm. The committee called at the old man's farm and was told that he was plowing in a nearby field. They proceeded to go to the field, but saw the old man coming toward the barn leading his mule. As he approached they informed him of their mission and explained the preacher's problem. The old man listened, and, when they finished, he replied, "Brother, I understand the preacher's problem and I assure you that I will make every effort to keep quiet in preaching from now on, but when I looks at this old hat of mine, and I thinks of that golden crown, and when I looks at these old shoes, and thinks of dem golden slippers; Here, hold this mule"!

PUBLIC HEALTH SPEAKS

E. H. ELLINWOOD, M.D., PRESIDENT
N. C. Public Health Association
County Health Officer
Greensboro, N. C.

Your North Carolina Public Health Association has assumed a new role this

President's address at 1954 meeting of
N.C.P.H.S.

year, and in keeping with the theme of our convention—"Public Health Speaks"—I wish to review some of the highlights of the present year. First, I would like to congratulate you for selecting

such an excellent Executive Committee. Its members have worked diligently in your behalf and have made it a real pleasure for me to serve as your president. Our secretary has done an outstanding job and we now have 1157 paid members. This is the largest paid membership we have ever had.

Moreover, we have become a more effective Association because we have united in a common cause—cuts in Federal funds have made it necessary for public health workers to join forces. There are other factors, which, if more generally understood, would increase our membership and make us a more potent force as public health continues to speak. Many of our members are not familiar with the history of our Association and have little knowledge as to its purpose. For this reason, I would like to give you a brief resume of our constitution. In the preamble it states, "In order to carry forward and enlarge the services of the North Carolina Health Officers' Association organized June 20, 1911 and since that time in continuous active operation protecting and promoting public health, providing for scientific advancement of members, and extending and developing the public health movement, there is hereby formed this Association of Public Health Workers." Article I: "This organization shall be known as the North Carolina Public Health Association according to the Amendment adopted April 24, 1922." Article II: "The purpose of this Association shall be to bring into one organization the public health workers of the State of North Carolina, so that by regular meetings and interchange of ideas they may secure more efficient cooperation and uniform enforcement of sanitary laws and regulations, and for the better dissemination of such knowledge as will make more effective the opinions of the profession in all scientific, legislative, public health, material, and social affairs."

My reasons for reviewing the purpose of our organization are: (1) To remind you that there is more to our organization than the annual meeting, which in reality is a yearly review of the prog-

ress of the Association, and to keep its members up-to-date on the latest trends in public health. (2) To point out that through a special committee to study "Merit System Salary Regulation" you have been ably represented. Many of our members would not have received salary increases were it not for the study and effort of this Committee. This Committee, over the years, has had your interests at heart and has worked diligently to cooperate with the State Board of Health and the State Merit System Council in an effort to keep salary ranges in line with social and economic changes. (3) Through your Legislative Committee, this Association has taken a forward step in informing the people of North Carolina in a positive manner, of the important part our Health Department personnel is playing in meeting the health needs of our people.

The primary purpose of this address is a report to you on our EACH ONE TEACH ONE movement. I would like to make it clear—so far as the record is concerned—that this movement is not the "brain child" of any particular person or group. It represents the combined thinking of many people. It had its origin at the American Public Health Association meeting in New York in 1953, when one of the speakers stated that Federal funds to public health had been cut over 50 per cent without a protest. This idea began to penetrate the thinking of various members and it was discussed in numerous small groups. Our North Carolina delegates continued to talk about it when they returned home. They were concerned over the previous reduction in Federal funds and what it did to our program; more particularly were they concerned about the proposed cuts for the coming fiscal year 1955. We were informed that we could anticipate about a 27 per cent cut. What could be done to prevent it? We knew that the State and Territorial Health Officers Association were organized to voice its opposition; but what could we in North Carolina do to help reverse this trend? I received numerous telephone calls and

personal visits from many of you who wanted the North Carolina Public Health Association to take an active part in this movement.

At the January meeting of the Executive Committee it was voted that your Association should take an active part—not just the Executive Committee, but the whole Association. How could this be done? Certainly, since it was a legislative problem, it should be referred to the Legislative Committee. Furthermore, a liaison committee was appointed to work with the Legislative Committee because it was felt that the State Board of Health, as well as the School of Public Health, should take an active part. The first step was to set up twelve regional meetings, plus two special meetings at the State Board of Health and the School of Public Health, which were designed to give every public health worker an opportunity to attend at least one of these meetings. Here you could learn how these cuts were affecting the budget of the State Board of Health, and of your own county, as well as the program at the School of Public Health at Chapel Hill.

The response at these meetings was excellent and for the first time your Association began to assume a new role in public health affairs in North Carolina. The slogan EACH ONE TEACH ONE—began to echo throughout the state and finally reached not only your representatives in Congress but also the President of the United States. The suggestion that each Health Department staff, as well as each individual member, write to its Senator or Representative, caused the mail to be flooded. I received many carbon copies of these letters. Even the Executive Committee of your Association wrote a special letter to President Eisenhower and to every Senator and Representative of the Federal and State governments, as well as to every chairman of county commissioners in North Carolina. The replies to these letters were prompt and practically every response was in favor of more support for public health needs. The most significant reply was from

Mrs. Oveta Culp Hobby, Secretary of Health, Education and Welfare, dated May 24, 1954. I will read you part of her reply which indicates the Administration's change in point of view:

The President has asked me to reply to your letter of April 12 relative to Federal funds for public health services.

You will be glad to know that the President has within the past few days sent to the Congress a request for sufficient funds for health grants to States so that the total Federal funds in fiscal year 1955 for this purpose will be—if approved by the Congress—equal to the current year's appropriations . . .

Thank you for writing. The opinions of those who know the health program in the communities are extremely helpful to us in administering the Federal grants-in-aid.

You will also be interested in a letter I received June 1 from Harold D. Cooley, Congressman from the Fourth District, which is as follows:

I read your letter with great interest, since I was, at the time of its receipt, engaged in preparing a statement for presentation to the House Appropriations Committee in behalf of an adequate appropriation for this very important purpose. I was very glad to have the information supplied in your letter and utilized the pertinent portions in my statement, which was made on May twenty-seventh and copy of which I enclose herewith for your information.

Assuring you that it was a pleasure to attempt to be of service to the Association in this matter, and with every good wish, I am . . .

In our State, John D. Larkins, Jr., who is now Chairman of the State Advisory Budget Commission, wrote the following letter:

This is a very informative letter and I agree with you that all of the one hundred counties have felt the cut in appropriations to Public Health Service during this year.

However, I think this is only the beginning and eventually the States are going to have to assume more and more of the burden of Public Health Service which will necessitate increased taxes.

I wish to thank you for calling this matter to my attention and I shall be

glad to do what I can in continuing the health needs of the people of our State.

In order to complete the picture locally, I wish to commend the various members of the Health Departments who not only wrote letters to these representatives, but encouraged many friends to write also. My only disappointment in this program is that only a small, but effective minority, assumed this responsibility. I hope in the future that we will have a large majority taking an active part.

You will be interested to know that Dr. Norton and I appeared before the annual convention of the County Commissioners of North Carolina at Wrightsville Beach on the 17th of August. This Association was told of the efforts that the North Carolina Public Health Association had made in bringing to the attention of our Federal and State representatives the problem that local appropriating bodies are facing as a result of these Federal cuts.

The County Commissioners Association was informed that the North Carolina Public Health Association has a right to be proud of the response it received, but this was by no means the end of its endeavor. It plans to call to the attention of our state legislators, before the next General Assembly, the need for more state funds to replace the Federal funds lost in 1954. We are also proud of the response many of our county commissioners have made in appropriating additional funds to meet local needs. Yet we realize the full burden cannot be assumed locally. Unfortunately, these cuts came just after the General Assembly had adjourned for the biennium when state funds were already set. Now is the time for your county to re-evaluate its public health needs and for you to let your state legislators know exactly what *you* want. We want your help and suggestions to enable the 1955 General Assembly to understand the various communities' needs and to plan wisely for meeting these needs through an increase in State funds for public

health.

On behalf of the North Carolina Public Health Association, we appealed to the County Commissioners Association to help each county board of health to review the needs and problems in its own county. We suggested that, if they were not thoroughly familiar with the situation in their own communities, they visit their health departments and find out what can be done to strengthen their programs. In view of the many problems which are arising as the result of increasing population and mounting costs of service, I am sure you will agree with us that these are mutual problems with which all of us are directly concerned. You will be interested to know that as a result of this meeting with the North Carolina County Commissioners Association, their Executive Committee agreed to appoint a special committee to meet with Dr. Norton and his budget committee. This committee can become a potent factor in arriving at a more equitable distribution of funds for the support of local public health departments, as well as for the State Board of Health.

I would like to recommend to our Association that the EACH ONE TEACH ONE movement be continued. In order to do this effectively, each member of the Association should become familiar with the needs as well as the total budgetary request made to the General Assembly by Dr. Norton. Therefore, let me stress the four most important items in his request. First, the \$250,000 for each year of the next biennium is to be distributed in its entirety to the local health departments in accordance with established policies. This amount will not fully replace the Federal funds lost during the last two years, but it will help the many counties which have about reached their limit in providing public health funds.

Second, I strongly urge that \$100,000 of State funds be appropriated for training of public health personnel. Securing trained personnel is one of the major problems each local health department has to face. At the present

time, there is no surplus supply of trained public health physicians, dentists, nurses, sanitarians, nutritionists, or health educators available to our Health Departments for employment. For example, this means that from \$1200 to \$1500 has to be spent out of local funds to train one sanitarian. The quality of public health activities is directly related to the training and qualifications of public health personnel. The protection of the public's health today requires workers with a high level of training and competence because of the highly technical and specialized nature of many public health activities. Thus, without adequate funds for a state public health training program, our local health departments will continue to suffer.

Third, those of us in the local health departments often have to turn to the State Board of Health for help through its consultant staff. This service is particularly needed in many of the counties which do not have full-time health officers. It is often needed in many of our heavily populated areas where new programs are inaugurated and where the problems are most acute. Unfortunately, these consultants are not always available where the need is the greatest *because of the lack of funds for state personnel*. Furthermore, many of our consultants are still paid from Federal funds and if the present trend continues further cuts will be made. Therefore, it is necessary to see that such positions as the Chief of our Health Education and Public Health Nursing Sections are paid out of State funds. Also, Dr. Norton is requesting an appropriation for an Educational Consultant in the Public Health Nursing Section. There has been justification for this position for years, but now, with the development of four collegiate schools of nursing, the establishment of this position is definitely needed. In the field of Maternal and Child Health, the Pediatric Consultant should be paid from State funds. Another important position—the Chief of the Nutrition Section—has had more demands for service than it is possi-

ble to render, and our Nutrition program would be seriously crippled, if through reduction in Federal funds, the State were unable to pay the Chief of the Nutrition Section.

There are other important consultant positions in the State Board of Health which are still paid out of Federal funds. It is our responsibility to take an active part in encouraging our General Assembly to provide sufficient funds to insure the continuation of these programs. I would like to call to your attention several other key positions which should be supported by State funds. All of us are familiar with the efforts of the Department of Epidemiology to develop a home accident program. This program should be expanded. Yet, the chief of this service is paid out of Federal funds. Likewise, in the same Department, the supervisor of the Central Tabulating Unit and the chief of the Venereal Disease Control Section should be paid out of State funds. Those of us in the larger cities are becoming uneasy over the increase in primary and secondary syphilis. Surely we cannot afford to lose our venereal disease control program for want of a competent medical officer and staff to head up this activity. The chief of the Veterinary Public Health Section is another of our more recent consultants in the Epidemiology Division. This service has been most helpful to local departments in their rabies control programs, but its efforts are directed principally toward the control of diseases primarily among animals—secondarily of man—many of which are important to North Carolina's livestock and milk industry. I am sure we will agree that all of these consultants should be paid out of State funds.

Fourth, the State Board of Health is proposing a sound, effective approach to North Carolina's mental health problems. It is requesting a sum of \$380,000 for the biennium to increase the number of Mental Health Clinics from 6 to 10. In so doing, it proposes to set up these additional clinics in areas where the need is greatest. At

the present time, there are no mental health clinics east of Raleigh. These funds will go directly to the local communities where the program can be most effectively developed.

Public health should continue to speak, and we, as members of the North Carolina Public Health Association, should back Dr. Norton in his request to the General Assembly for additional funds for public health. The pressing need in North Carolina is for extension, not curtailment, of public health work. The maintenance

of good health is the goal for which we are all striving; it is our duty to be ever vigilant and to maintain the high quality of public health practices which are so necessary in achieving this goal. All of us should assume our responsibilities by giving these problems our best thought and effort. Above all, let us be ever mindful of the theme of this convention "Public Health Speaks"—and strive to keep it ever before us, throughout this year and the years to come.

WHERE DO WE GO FROM HERE IN PUBLIC HEALTH?

WILSON T. SOWDER, M.D.

State Health Officer, Jacksonville, Florida

The title of my talk is "Where Do We Go from Here in Public Health?", but before I try to play the risky role of a prophet, let's consider the past and present of public health. I do not think that I would be adding to your present knowledge or stimulating your thinking very much if I took this opportunity to review for you the astounding accomplishments in the field of public health that have been made in the last 25 to 50 years. The almost complete disappearance of malaria, typhoid fever and typhus fever and the precipitous drop in maternal and infant death rates, and death rates from syphilis, tuberculosis and other communicable diseases is an old story to most of you; and, although it is well worth retelling, I am sure you didn't need to have me come up from Florida for the purpose. *However, I do want to point out the danger of too much emphasis on our glorious past, because it is apt to have a lulling effect on us and interfere with our plans for the future.* I went to school at the University of Virginia, and I

remember a professor there telling with an air of injury how some Yankee visitor had cautioned him not to use the great traditions of the University as a rocking chair. I fear the remark was very appropriate to some at my Alma Mater at the time in spite of the fact that feelings were hurt. However, let me hasten to add that, from all that I have known or heard about you North Carolinians, it is not customary in this State to let traditions hamper the path of progress. I know that you will agree with me that it is not enough today to tell the public and our appropriating bodies that due to our efforts many diseases are no longer so common or cause so many deaths. We know that the people and their elected representatives are very likely to be even more practical than the fellow from whom a friend wanted to borrow five dollars and who reminded him of the many favors *he* had done him in the past; and the fellow replied, as we all know, "Yeah, but what have you done for me lately?" The people are willing to applaud our past accomplishments but are not willing to pay us today or tomorrow for what was done yesterday.

In fact, we have a tendency to exaggerate our past accomplishments and

are shameless in taking credit for improvements for which we should, but for which we were not solely responsible. Public health, meaning persons working for official and non-official health agencies, contributed to but did not do the whole job of reducing the death toll from tuberculosis. Improved economic conditions and better education have been important factors. Lowered infant mortality rates are not entirely a product of our work. Refrigerator salesmen, plumbers and even the lowly iceman have helped as have many groups and many factors. We have done enough to be very proud about it, but more and better hospitals, newer and more effective drugs and better trained physicians and nurses have probably done more to lower mortality rates.

I believe that one of the greatest handicaps that we have in public health today is a certain lack of confidence in the future and a lack of plans for it. Perhaps this is because our public health problems seem to have become so numerous and complex. Many of us have been in public health long enough to remember when it was not so difficult to get agreement on what the major public health problems were and when it was easier to explain to the public and to appropriating bodies why money for public health was needed and how it would be spent. A few cases of typhoid fever in a community were all that was necessary to illustrate the need for a county health department, and this one disease could be used to explain the work of a health officer sanitarian, sanitary engineer, public health nurse—in other words the work of the whole public health team. I would certainly be the last to deplore the passing of this terrible disease, but I do want to point out that we have not been able, even with all the improvements in audio visual aids, etc., to devise an exhibit that is quite as dramatic and effective as a real live, or dead, case of typhoid fever.

Now before the old-timers among you take offense at any seeming implication from what I have just said,

that you had an easy time in public health in the old days, I hasten to say that I didn't mean that at all. I didn't mean that you had an easier time getting appropriations. I know you didn't. What I mean is that by limiting your field of endeavor your problems were more clear-cut, more dramatic, easier to discuss and explain; and the solutions to them were clearer. You could promise much greater returns to the public in better health and lives saved per dollar spent than can be done now. You could show impressive graphs whose lines plummeted dramatically from high peaks to low incidence. And public health, like the virgin soil in the pioneer days of this country, was cheaper then. Now, as in the case of land, the price of public health has gone up. We have been compelled, both by the lessening of the communicable disease problem and by public demand, to broaden the scope of our work and to cultivate what formerly looked like very barren soil. We are no longer allowed to plow only the bottom land. The pioneers in public health, and I'm thinking mainly of those who worked in the period of from 15 to 40 years ago, did not have an easy time, but I think they had more fun than we do now. They had a better idea of what they wanted to do and where they wanted to go. They were not assailed by doubts, nor hampered by ideological disputes. They *knew* what the public health problems were. Your own Dr. Applewhite is one of those crusaders that I am talking about, and I am sure that each of you has already thought of others who fit in this picture and who fought a good fight. Public health then was more like a crusade and for reasons somewhat similar to those which brought about the original crusades in the Middle Ages. At that time the Holy Land was in the hands of the infidel Saracens, and the true believers of the Christian faith had no doubt but that the proper course was to take it away from them and let the purifying air of Christianity replace the evil smell of heresy. Our public health crusaders

encountered many unbelievers, and it was very satisfying to tilt with them. They lost many battles, but they won all the wars and public health became a "knight in shining armor." Appropriations increased and county health departments multiplied. We got more personnel but also more jobs to do. Our reputation for near-miracles became almost a handicap, and every session of Congress and of our state legislatures gave us new duties and responsibilities. For some of these, funds were provided, but some we were expected to do "in addition to our other duties." The State Board of Health in Florida, established in 1889, originally had only one duty, to control communicable diseases and among these mainly yellow fever. By 1950 the list of duties had grown to 84, and several new ones have been added since.

But many of us nevertheless have an uneasy feeling about the future. One of our difficulties is explaining our needs in public health. There are undoubtedly in this audience plenty of individuals who can make a fine ten-minute or hour-long talk on any program that you have here in North Carolina, be it nutrition, industrial waste disposal, cancer control or infant care. But I am sure that all of you will agree that it is quite difficult to say enough about public health's numerous present problems in any reasonable length of time. I know how difficult (or impossible) it is to do this because I have had the job of telling what the Florida State Board of Health does to civic clubs, our state budget commission, governors and legislative appropriating bodies in time limits ranging from ten to thirty minutes. The program chairman casually says, "take all the time you want, doctor (up to 30 minutes); that is, tell us everything about public health."

This frustrating predicament is faced constantly by responsible public health officials every day on national, state and local levels of government. We are favored by an interested and enlightened public, and by and large our legislators are sympathetic and far from

parsimonious. They actually want to give us money to improve health and sanitation and to prevent illness and needless deaths. I make this statement in spite of the trend in Congress in the past few years to reduce appropriations for grants to states. These reductions were based in part at least on the philosophy that the states are responsible for this important job; partly by a swing of interest from the types of work that state and local health departments do to vocational rehabilitation, to the construction of hospitals and related institutions, to research, and to medical and hospital insurance. (In parentheses, I'd like to add that if we do not agree with these congressional actions and policies we should express our views to them in every proper manner, by letter, by telegrams and by personal conferences.) However, we should not spend too much of our time lamenting the whims of the Federal government. Our principal sources of support, financial and otherwise, are our own state legislatures and city and county officials. I have already touched briefly on the fact that our principal handicap lies in the difficulty of presenting briefly and clearly the answer to the simple question: "What are your problems?" When I was the director of a state venereal disease control program and had over 30,000 new cases of syphilis reported in a year and over 30,000 persons under treatment for this disease, it was possible to answer such a question concisely. Now the answer is not easy because you don't get very far if you answer, "My problem is the need for \$2,000,000 to better handle ten or twenty or more problems."

Sometimes people seem more interested in buildings than the people working in them. I congratulate you on the new building that you have gotten for the health department here in Raleigh but I know that my old friend, Dr. Norton, will agree with the old Chilean proverb "The bird is more important than the cage." The problem of keeping well trained, experienced and competent personnel by

providing adequate salaries and optimum working conditions is not one that has wide appeal. It is intangible and therefore difficult to sell.

I believe that one of our major problems today and in the future in maintaining public interest and support is the very multiplicity of our problems. More and more we must examine that perplexing question: "What is a public health problem?" We have a multitude of friends and supporters who will help us get all the money we need for tuberculosis control, if we choose to concentrate on that alone. We have a multitude of friends and supporters who will help us get all the money that we need for cancer control, if we choose to concentrate on that alone. The same can be said for mental health, sanitation, mosquito control, stream pollution and a host of other diseases and conditions. We have enthusiastic groups in Florida who are anxious, willing and able to help us get money for inspection and laboratory work in connection with crabmeat inspection, for research on better methods of getting rid of waste, for more and better food handlers' schools, for tuberculosis control, for cancer control, etc. But, when we ask for help in getting funds to protect the people of Florida from *all diseases and all unhealthful conditions*, and to *promote health and longevity*, the line of helpers thins out. Few seem to be enthusiastic about coordinated public health action in tuberculosis, cancer, venereal disease and maternal and child health, even though these problems occur in the same communities, in the same households and at times even in the same persons. There are few rooters, (except for a few sanitary engineers and sanitarians in supervisory positions, and the State Health Officer), for an overall environmental sanitation program, including water supplies, sewage disposal, pure food, milk, stream pollution, etc. Outside our public health laboratories, there are no organized groups and few individuals who realize that laboratory work is basic to practically every endeavor undertaken by

the health department. I never heard of any interested outsider being a champion of *one* health department activity which is the oldest of all, namely the collection and filing of birth and death certificates, the furnishing of certified copies of them and their analysis.

People know more about disease today than ever before. We can take some of the credit, but so can radio, TV, newspapers and popular magazines. Since the public is more knowledgeable, I hear a great deal these days about encouraging the ordinary citizens in communities and states to study their own problems and help determine their own needs. I think this is an excellent thing if we, who are trained in public health, are not restrained from providing some leadership in arriving at the conclusions. A democracy such as ours is based on the principle of the people being able to get what they want, but I believe that even in a democracy people trained in special fields, such as we public health workers, have a responsibility to say what they think is best. Whether or not our advice is taken is up to the people when all is said and done. I am not such an idealist as to think that an endeavor such as public health, which is based on public support and financed with public funds, can maintain a perfect balance between what is done and what ought to be done. Furthermore, I am not so conceited for our group as to think that were all our advice heeded we would necessarily have a state of perfection. For one thing, we in public health do not unanimously agree on where we want to go. We come from many professions and groups. We have different interests and points of view, and this contributes to our strength even though it prevents unanimity of opinion. True, in some ways it confuses the public, and better public understanding is one of the goals of the future in our field.

We cannot, however, afford to drift aimlessly with the tide of public opinion, nor succumb to easy pressure which would not, in our opinion, advance

the cause of health improvement. We can protest, and can recommend—and we should. We should study our problem as a farmer does his land and decide which fields would best be plowed and which can most profitably be left fallow. We can and should take the public and public officials, including legislators, into our confidence and ask for their help in planning; but we should be frank with them and resist the tendency to favor always the popular and expedient course.

It seems to me, though, that we should agree on some basic action for the future. We must recognize the fact that our job in public health has changed and is changing and will continue to change. We should recognize the fact that past successes do not justify our present and future existence. We should not exaggerate our past contributions, but, on the other hand, we should emphasize the possibilities for effective work in the future. We must realize that the work ahead of us may not be so dramatic as that in the past. We must reconsider our former major objective of reducing mortality from specific diseases and causes, such as pellagra, diphtheria and the like. Our present objectives should include holding the line against the return of these diseases that have become minor public health problems and shift gradually to a program of general health conservation. Helping people to stay out of the hospital, to lead more vigorous and longer lives and to maintain a better mental and

emotional balance may not be so spectacular, but it is the job, as I see it, that remains for public health to do in the future. We will find ourselves doing more and more to make living conditions pleasant and enjoyable. For example, we are already spending sums of money in Florida to combat pest mosquitoes, as distinguished from disease-bearing mosquitoes. We are paying more attention to public water supplies which have had tastes and odors or which discolor laundry or clog pipes. Industrial plants which give off unpleasant odors or dust are investigated. We are beginning to learn that to be healthy physically, mentally and emotionally, we must be happy and contented where we live.

Our criteria for selecting programs of the future should be based not only on preventing illness and saving lives but also on the newer theory that they promote health and physical and mental well-being. Such programs as those concerned with chronic diseases (cancer, heart disease and diabetes) and mental and emotional disturbances, including alcoholism, will be promoted in the years to come. In the field of environmental sanitation, pest mosquito control, atmospheric pollution, stream pollution and control of allergy-producing substances, I feel will be important. Many other problems, now unthought of, will come to the fore and occupy our minds in the next few years. But I have enumerated enough to keep all of us busy for quite a while.

NOTES AND COMMENT

BY THE EDITOR

THE GENERAL PRACTITIONER'S AWARD*

At the annual Clinical Meeting of the American Medical Association in Miami, Fla., Nov. 29, 1954, the annual

General Practitioner's Award, consisting of a gold medal and a citation was given to Dr. Karl B. Pace, who has practiced medicine in Greenville, N. C. for nearly 40 years except for his military service in World War I. The selection of Dr. Pace as the typical family doctor of 1954 was announced at the opening session of the House

*Editorial. Vol. 156, No. 15, J.A.M.A., Dec. 11, 1954.

of Delegates by Dr. Dwight D. Murray of Napa, Calif., chairman of the Board of Trustees. Dr. Pace completed the first two years of his medical training at the University of North Carolina and then went to Philadelphia, where he received the degree of doctor of medicine from Jefferson Medical College in 1914. After an internship at Gouverneur Hospital in New York City and at Nassau Hospital in Mineola, N. Y., he returned to North Carolina in 1916 and began a career that has been devoted to helping his fellow men and to the betterment of his profession. Dr. Pace was a leader in the reorganization of the Pitt County Medical Society, a president of the Tri-State Medical Society, and for six years a member of the North Carolina Board of Medical Examiners and is a member of the Seaboard Medical Society, the American Academy of General Practice, the Medical Society of the State of North Carolina, and the American Medical Association and head of the Atlantic Coast Line Surgeons Association. He was a member also of the original committee to reorganize the medical college of the University of North Carolina, which led to the establishment of a four year medical school in his state. He, with three other physicians, led a movement many years ago to build the first hospital in Pitt County, for which all four physicians mortgaged their homes and borrowed money on their insurances and other valuables. In 1920 Dr. Pace started the first venereal disease clinic in North Carolina. His civic activities include directorship with the Boy Scouts, the Red Cross, the chamber of commerce, and a bank. He was chairman of the Greenville Utilities Commission for years, president of the Greenville Rotary Club, and an organizer of the Greenville American Legion Post and of the Pitt County Executives Club.

He has been chairman of the finance committee of the Jarvis Memorial Methodist Church for 25 years and active in the work of the Community Chest and the March of Dimes campaign of the National Foundation for Infantile Paralysis. Dr. Pace has three sons, two of whom are physicians, while the third recently completed the senior year at the University of North Carolina. When earlier this year, he was selected by the Medical Society of the State of North Carolina as the general practitioner of the year, the mayor of Greenville said, "He is loved and respected by the rich and poor alike as he has unstintingly given of himself to all who have called upon him not only for medical treatment but for business and spiritual assistance in times of need. Although busy day and night with the practice of his medical profession he has somehow been able to find the time to be outstanding in almost every important civic endeavor of this city." His type of service is described also by a colleague who said, "In spite of the enormous demands made upon his time and strength by virtue of his professional, religious, and civic activities, Dr. Pace has never become too busy to stop and listen to people's troubles and to try to help in solving their problems through sympathetic counsel, encouragement and financial aid."

The Annual General Practitioner's Award of the American Medical Association has been awarded to seven other physicians since it was first given in 1948. They are Archer Chester Sudan, Kremmling, Colo.; the late William L. Pressly, Due West, S. C.; Andy Hall, Mount Vernon, Ill.; the late Dean Sherwood Luce, Canton, Mass.; Albert C. Yoder, Goshen, Ind.; John M. Travis, Jacksonville, Texas; and Joseph I. Greenwell, New Haven, Ky.

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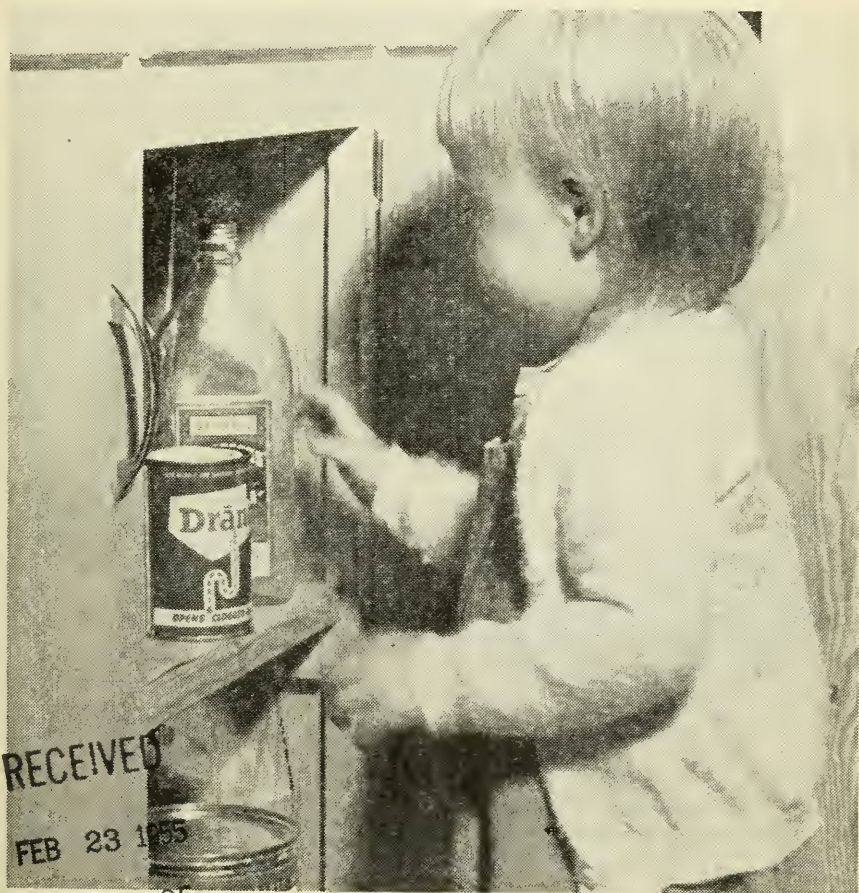
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THE Health Bulletin



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No. 2

J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

DEATHS FROM POISONINGS—NORTH CAROLINA'S MOST PREVENTABLE ACCIDENTS

By CHARLES M. CAMERON, JR., M.D., M.P.H.
Chief, Accident Prevention Section

and

EDGAR F. SEAGLE, B.A., M.S.P.H.
Sanitation Consultant, Accident Prevention Section
N. C. State Board of Health

The wider recognition of the importance of home and farm accidents as a health problem has focused particular attention on those deaths in the home resulting from poisonous solids, liquids and gases. Since the incidence of such accidental deaths is five times higher in children under five years of age than in other age groups, deaths from poisons are of paramount interest to pediatricians, general practitioners and public health workers. Of further importance is the fact that studies show five out of six poison deaths occur in the home, still considered by many as the safest place on earth.

Bain, in a recent review, has pointed out that the death rate from this cause in the United States is four times that of the British rate and that twelve southern states have a death rate from accidental ingestion of poisoning twice that of the United States.¹

In children under five years of age in the entire United States, the death rate from poison accidents is 2.6 per 100,000 based on a two-year sample, 1949 and 1950. During a corresponding

period, the North Carolina death rate in the same age group was 4.2 per 100,000. Figures just released for the year 1953 indicate that in North Carolina twenty-one deaths occurred among children under five years of age from poison accidents. The 1953 rate also is 4.2 per 100,000 in this age group.

Accidental deaths from poisons accounted for about five and one-half per cent of the 1,034 non-motor vehicle accident deaths in North Carolina in 1953, with this cause having been listed as the cause of death on fifty-nine certificates. Forty-nine of these deaths occurred either in a home or on a farm.

A review has been made of the poison deaths to delineate possible epidemiological factors concerned in their causation and to discover possible avenues along which one may approach the control of such deaths.

Of the 59, a total of 16 deaths were listed as resulting from drinking beverage alcohol or an alcohol containing products such as a paint diluent, solvent or commercial preparation em-

bodily methyl alcohol. In fifteen of these instances the death seemed to follow the deliberate ingestion by an adult of these products in an effort to obtain some degree of intoxication, and these fifteen cases have been excluded from further study. In one instance a four-year-old Negro male died after drinking a quantity of illicit whiskey in his home. This case has been classed as a true accidental poison death since it is highly unlikely that the child's primary intent was to become intoxicated.

Of the remaining 44 deaths classed as resulting from poison, an additional five case were excluded from the study. In four of these, the information on the death certificates indicated that the poisonous agent only secondarily contributed to the death. Typical of these cases was that of a twenty-year-old white male working in a well where he became overcome by gas, fell unconscious and drowned prior to being pulled from the well. The final case excluded from the study was that of a four-year-old Negro male who was listed as having succumbed "due to acute intoxication resulting from the ingestion of an unknown toxic substance." The absence of more specific data makes classification of this case difficult.

Of the 39 cases studied, 34 occurred in the home, four occurred in some other specific location and the place of occurrence of the final one is unknown. A total of 19 of the accidents involved white persons and 20 involved Negroes.

Twenty-one of the 39 accidents claimed their victims among children under five years of age, with deaths among Negro children outnumbering those of white children three to one. As in other accident studies, males were involved four times more frequently than females. Children under five years of age experienced about five times greater incidence of poison deaths than other age groups. (See Graph I.)

The race specific death rate is 0.6 per 100,000 white residents, compared to 1.8 per 100,000 non-white residents.

The sex specific death rate for both races among males is 1.6 per 100,000 and among females is 0.3 per 100,000.

The sex specific rate among non-whites is 3.4 per 100,000 males and .3 per 100,000 females. Among whites, the sex specific rate is .9 per 100,000 males and .3 per 100,000 females. (See Table I.)

The 39 deaths occurred in twenty-three North Carolina counties. Cabarrus, Cumberland, Durham, Forsyth, Gaston, Guilford, Lenoir, Mecklenburg, New Hanover, Richmond and Wake Counties recorded more than one death from poisonous solids, liquids and gases. The largest number reported from any single county were in Wake County, where five accidental poisonings occurred in 1953. Durham and Lenoir Counties each recorded three poison deaths.

These 39 deaths were analyzed as to poisonous agent, and the agents were classified. (See Table II.) Drugs and other medicinals caused 18 of the 39 deaths to account for almost one-half of the total. Carbon monoxide gas was encountered the next most frequently, leading to seven deaths. Pesticides were listed as the injurious agents in six of the poisonings. Petroleum products caused three children's deaths, lye and other caustics two, and alcohol and furniture polish one each; while one death from an unclassified toxic agent was recorded.

Of the medicinal agents leading to accidental death, aspirin was the most frequent offender, causing the deaths of five children under five years of age. Investigation revealed in most instances a male toddler discovering a bottle or package of aspirin tablets and, emulating the adults whom he doubtless had observed, eating the contents. The role of the candy flavored aspirin is highly suspected in these cases, although in many instances palatability is not a factor insofar as a child's eating or drinking toxic substances is concerned.

Analgesics, such as dolophine and methadone and barbiturates, were encountered the next most frequently.

Laxatives, anti-hypertensives and a variety of other therapeutic agents accounted for the remaining deaths in the drug group.

Insect and rodent poisons accounted for the majority of the deaths classed as pesticide accidents. The synthetic organic pesticides were not encountered, the majority being of the heavy metal group.

Since information available to the investigators was limited to that contained on death certificates, no accurate information is available on the total number of non-fatal accidents resulting from toxic materials. One study completed by the Insect and Rodent Control Section of the North Carolina State Board of Health indicated a possible high incidence of eye injuries resulting from the use of organic insecticides in agriculture in eastern North Carolina.

The National Safety Council, on the basis of large-scale surveys among policy holders of several insurance companies, has estimated that, for each accidental death, there will occur from 100 to 200 non-fatal accidents.² Applying these estimates to the 1953 experience in North Carolina and utilizing as a base only the 39 cases studied, one may estimate from 3,900 to 7,800 non-fatal poisoning accidents each year. Admittedly, poisoning accidents may have a higher fatality rate than other types of accidents, but all would acknowledge that the loss of life, disability and economic loss from this single type of accident are tragic. Arena, Dietrich, and others frequently have cited the physically and mentally traumatic crippling resulting from non-fatal accidents with lye and other caustics.^{3,4}

All safety authorities agree that, except in the most unusual circumstances, an accident experienced by a child under five years of age represents a failure on the part of the parents in exercising the necessary protection and education to equip it to meet the hazards of day-to-day living within the home.

Since the protection of children from death by the accidental ingestion or

inhalation of a toxic material can be achieved by the total and complete separation of the child from the toxic agent, one is tempted to observe that with these accidents the etiological relationships are not as complex as in the case of falls, fires and other types of home accidents. While the prevention of these accidents hinges on the relatively simple principle of separation of the child and the poison, stimulating the parent to institute such control of toxic materials in the home is exceedingly complex.

Doubtless some of the poison deaths and injuries each year can be attributed to apathy, carelessness and a genuine lack of concern on the part of the parent for the safety of the child. Some possibly can be attributed to the great number of highly toxic agents which are marketed, purchased and brought into the home without the labels noting the toxicity of the contents. This is true of furniture polish, paint solvents, cosmetics, floor wax, bleaches, soaps and many of the household cleaning aids now on the market. A study recently completed by the Department of Pharmacology of a large Eastern university pointed out the extreme reluctance on the part of several of the leading manufacturers of waxes, polishes, cosmetics and other products to divulge even the barest details as to the constituents used in the manufacturing process.

Pharmacists and physicians from time to time have been exhorted to caution patients receiving prescriptions as to the toxicity of the medicine. The manufacturers of "baby aspirin" have been petitioned to reduce the amount of aspirin per tablet, reduce the number of tablets in each package and remove the candy flavoring and coloring from the tablets. Some degree of cooperation is being obtained from all of these sources.

While an attack on all these fronts can contribute to the protection of the child from the toxic agent, none can create a complete barrier, since the final act of this modern tragedy is written within the home, where the child is

the total responsibility of the parents.

Parents must be impressed with the importance of investigating all solids and liquids—medicine, cosmetics, cleaning agents, paints, solvents, preservatives—which are within the reach of the child, keeping in mind at all times the toddler's remarkable climbing ability and removing all the known or questionable toxic materials. Old prescriptions and highly toxic materials should be discarded from the home in a safe manner, such as by burning or burying. Certain non-toxic cleaning agents may be substituted for the highly toxic caustics and alkalis. Those medicines and other chemicals, absolutely essential to home operation, may then be stored in a special locked cabinet completely inaccessible to the child.

The education of the parent as to the importance of this two-step procedure—removal from the home of the useless and most toxic, and totally and completely locking up that which remains—must fall to all those individuals and agencies which influence parents and family living today. Almost daily the impracticability and lack of success of safety campaigns, special days, weeks and months and widespread use of mass media for safety education is more clearly demonstrated to safety leaders. Learning is most efficient when based on firm footings of intra-personal

relationships and it will be the "face-to-face" teaching of safety by physicians, public health personnel and professional and lay adult educators that holds the most promise for controlling America's growing accident problem.

Until such time as this method of safety education may gain momentum in North Carolina, the reduction of poison deaths may rest heavily on the ready availability of competent medical aid to counteract the effects of the poison. To meet this need, within recent months the Duke University School of Medicine has established a Poison Control Center, patterned to some degree after the initial endeavor of this type in the Chicago area.⁵ The Durham institution offers not only twenty-four-hour treatment facilities for poison victims brought to the hospital but also ready information for physicians as to the constituents of most toxic agents, the antidotes and methods of treatment. This information can be obtained by anyone in the tristate area day or night by calling Duke Hospital.

The control of accidental deaths from poisons may be looked to as another example of the necessity for the skillful blending of preventive and curative measures which holds promise of saving the lives of scores of North Carolinians each year.

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GRAPH I

Accidental Poisoning Deaths
North Carolina—1953

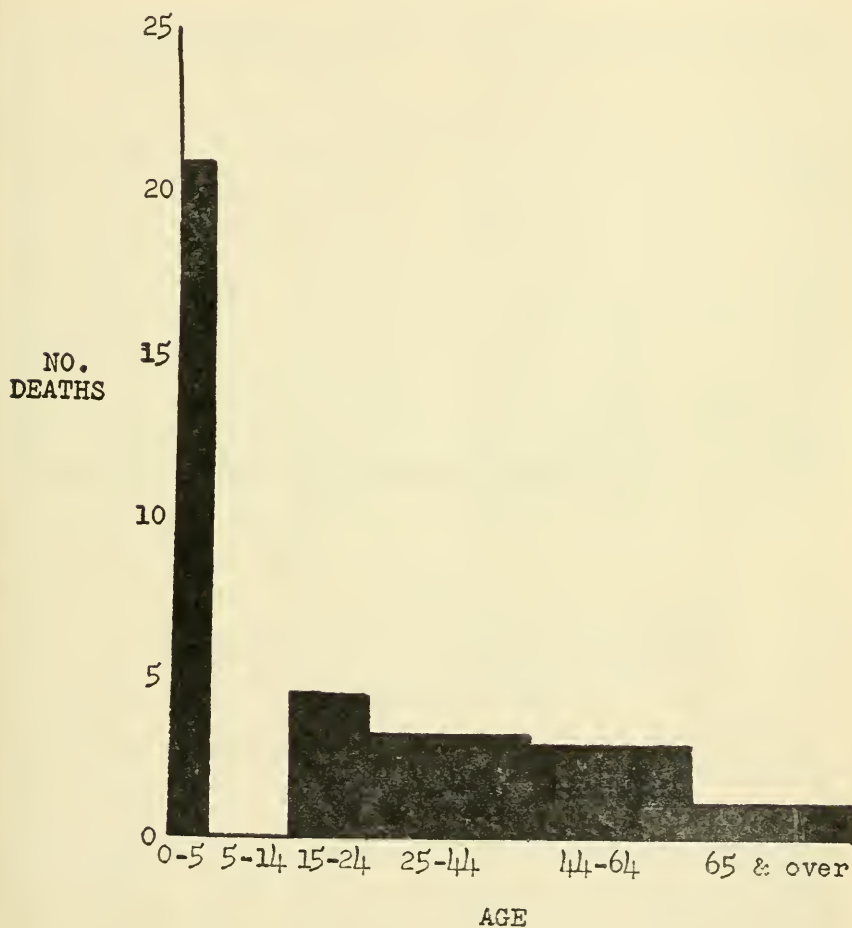


TABLE I
Accidental Poison Deaths By Age, Sex, and Color
North Carolina—1953

Age	Male		Female		Total
	W	C	W	C	
Under 1	1	2	0	1	4
1-4	5	10	1	1	17
5-14	0	0	0	0	0
15-24	2	1	1	0	4
25-44	2	2	1	0	5
44-64	4	2	2	0	8
65 and over	0	1	0	0	1
Total	14	18	5	2	39

TABLE II
Accidental Poison Deaths By Type of Toxic Agent
Number and Percentage
North Carolina—1953

TYPE	NO.	%
Medicinal	18	46.1
Carbon Monoxide	7	17.9
Pesticides	6	15.4
Gasoline and Kerosene	3	7.7
Household Agents	3	7.7
Alcohol Poisoning (Accidental) (Ingestion)	1	2.6
Unknown	1	2.6
Total	39	100.0

HOW SHALL THEY SURVIVE?

L. R. MEZERA, M.D., Director

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May I ask your indulgence to more or less introduce the theme of this: "How Shall They Survive?" Although I shall specifically limit myself to survival in the area of maternal and child health, we as public health workers must consider the total environment because mankind in its search for survival and longer life has banded together in community life as one means for reaching the objective of its search. As a natural result of a community banding together some organization or governing body had to come into the picture. With this type of setup the next step was logical—the people began looking to their government in a further search for survival. This search, as you all know, was fruitful. Public health came into being and a salient responsibility was accepted, namely, the responsibility of safeguarding the health of all people. Specifically, this responsibility became a mandate—life must be saved, health must be preserved.

With this mandate before us we privileged public servants are meeting at this time to also search for means and methods of performance to comply with the mandate and to render the duty and service inherent in our jobs as public health workers.

We must recognize the demand for good health and longer life, and we must come up with the answers to questions such as "What shall be done?" "Who shall do it?" "How shall it be done?" We cannot sit idly by content merely to gather informative statistics relative to human morbidity and mortality. We must provide for an adequacy of follow-up. A constructive program must be the result of a careful and scrutinizing survey of local activities. This survey, when care-

fully obtained, should, when evaluated in proper scope, then point out pertinent problems as to their existence and their reality. Then, and only then, can we come up with a program of survival, a program of preventing unnecessary illness, a program of salvage, a program of prevention of needless deaths. Progress requires continuing change and improvement, and we still have a long, hard road ahead of us.

Our currently accepted philosophy that a community is bounden to do for its people that which they cannot do for themselves is what motivates us. We have accepted this philosophy as part of the mandate from the people. A condition which increases the burden of the community is demanding of our attention, and preventive efforts must be expended to lower the burden and decrease the load. Economic productivity, standards of living, ways of life, all are in jeopardy if we fail to accept the concept that our people have a right and a duty to demand and take measures for the prevention of illness and the preservation of life. The goal toward which to strive is the creation of an environment in which there will be no human suffering or premature deaths.

This brief introduction leads me into the specific field of maternal and child health. "How Shall They Survive?"

I approach this subject with timidity. The expanse of maternal and child health is infinite. There is no segment of life that can be divorced from the area encompassing the mother and child. Here again we find a circle without end.

Despite tremendous strides in recent years, many mothers continue to die, and many deaths still occur in infancy and childhood, deaths that need never occur if we would but explore the reasons for their occurring. As an approach to a program of salvage, I must refer you to certain sec-

tions of the "Children's Charter" promulgated at President Hoover's White House Conference on Child Health and Protection. Section IV of this Charter reads as follows: "For every child full preparation for his birth, his mother receiving prenatal, natal, and postnatal care; and the establishment of such protective measures as will make child-bearing safer."

Section V—"For every child health protection from birth through adolescence including: periodic health examinations,—protective and preventive measures against communicable diseases, the ensuring of pure food, pure milk, and pure water."

Thus we see a further strengthening of the mandate—life must be saved, and health must be preserved.

Maternal health and child health are inseparable and when we speak of the mother we must include the child. The road the mother travels during her pregnancy and at the time of delivery is directly reflected in the health of the child. Therefore, when asking "How Shall They Survive?" maternal health services cannot be removed from a child health program. Recognizing this concept, we must go farther and state that a program of survival and salvage must be community-wide. It must have the interest of all the mothers and all the children of that community. By a method of health education, the mother must have that guidance and educational service available which will lead her to seek medical supervision as early in pregnancy as possible and guide her in maintaining the good health of her child at all times, during sickness and in health. In some instances, services must go beyond the educational phase. They cannot be restrictive, since, as mentioned above, it is bounden upon any community to do for its people that which they cannot do for themselves. This calls for a complete community support of an organized public health program, a program that in no way will remove the family doctor from the key relationship role of patient and physician but will recognize

him and his colleagues as the hub of a total community program.

"How Shall They Survive?" The baseline of any program whatsoever must be sound, must be feasible. Certain questions immediately face us.

1. Is there a problem? Does it exist? Is it real?

2. What is the extent and range of this problem?

3. Why does this problem exist? Are available services adequate? How can we expand? What are the needs?

4. Are finances and financial support adequate to expand services?

5. Are facilities available?

In short, we must first make a careful survey of the situation, carefully evaluate all segments of this survey and then, and only then, formulate a program.

The health officer is the one authority to whom every community should look for wise guidance in the total health program of any community. He has the real responsibility for the going on record against any wasteful and useless programs. If he is sponsoring such programs (otherwise than by legal compulsion) he should abandon them without delay. If he is required by law to provide such programs, he should make vigorous efforts to have the law changed.

Surveys in the field of maternal mortality point out that much progress has been made in the last twenty years. In 1934 in this country sixty mothers died for every 10,000 live births. Today less than eight die—in other words, chances of death's not occurring are better than 999 out of 1,000. Yet ten years ago 12 deaths for each 10,000 live births were considered the irreducible minimum. Today such states as Minnesota, with a rate of 3 per 10,000 live births, and Oregon and Connecticut, with rates of 1 per 10,000 live births, clearly and with emphasis, indicate that there is still room for improvement and there is no irreducible minimum. Intensive studies in these states also brought out that, despite the progress in reducing deaths, many of those mothers who did die should not

have died.

"How Shall They Survive?" Our mandate is clear. The importance of early and adequate prenatal, natal and postpartal care emphasized through public health services such as education of the community, and through evaluated surveys for the education of physicians and hospitals, demands a high priority. Where the need exists, direct services must be provided.

We take for granted that pregnancy is a normal physiological process; yet the need for continuity and adequacy of care throughout the gestational cycle is frequently overlooked. We fail to recognize that a healthy birth is predicated on being born of a healthy normal mother and that poor health of the mother may precipitate a serious, if not fatal, outcome to mother and/or child. It is imperative that preparation for motherhood begin long before the culmination of the miracle itself. Premarital guidance and guidance in marital problems must be incorporated in a program of salvage which should also include measures encompassing the physical and mental condition of the mother.

Priority should be given to a program of educating the mother to seek medical care, observation and direction as early in pregnancy as possible in order to harvest the full benefit of adequate prenatal care. We must emphasize this point in all our health educational activities, and particularly in those areas where medical facilities are lacking must some provision be made to make such a program and facilities available.

Adequate prenatal care is essential and must include a complete history and physical examination with provision for periodic examinations at stated intervals. The examination is not complete unless it includes serological testing for syphilis and determination of the Rh status. An X-ray of the chest should be mandatory, certainly highly desirable. Educational efforts to stimulate the mother to report any irregularities or symptomatology must be expended, and any un-

toward signs or symptoms should be explored immediately.

Recent research projects in the field of nutrition during pregnancy point up the fact that nutrition today is more than a counting of calories. Maternal nutrition must meet the demands of both mother and child. We have reason to believe that where nutrition is good and deficiencies corrected by supplements, the incidence of toxemia is lower than where nutrition is inadequate or deficiencies occur. Also, fetal and neonatal mortality rates showed a decrease where diet was adequate, and the incidence of premature birth was decreased. The studies further point out that toxemias of pregnancy are more apt to occur in the overweight mother and that prematurity and toxemia are more prevalent in the underweight than in the mother whose weight remains within average limits. "How Shall They Survive?" To preserve the health of mothers and infants a sound nutritional program must be promoted.

The prospective mother must be protected against syphilis and tuberculosis. A diagnosis of existing syphilis by prenatal serology calls for all-out efforts to cure or arrest the disease in the mother, which efforts, in turn, will in almost all instances protect the fetus. A diagnosis of tuberculosis calls for close medical observation, supervision and education throughout pregnancy, and the removal of the infant from the maternal environment immediately after birth.

Control measures for the prevention of German measles must be instituted in view of what is known of the role of this disease early in pregnancy and its effect on the child.

Basically then "How Shall They Survive?" In maternal hygiene the prime objective is the conservation of life and health of the expectant mother and her developing infant. The objective leads us to promote a program wherein medical care is made available to every pregnant mother and the mother is persuaded to obtain it throughout the maternal cycle. It is

most desirable that this service be rendered by a single physician of the patient's choosing in order to maintain continuity and adequacy, but, when unavailable from this source, this service should be obtained through community facilities sponsored by the local health department.

To aid the mother in preparing for confinement and acceptance of the pregnancy, periodic nursing visits should be made. The total environment is thus explored and when conditions exist which would make delivery at home hazardous, arrangements for a clean, decent place are in order.

Continued and wise health education of all prospective mothers in all phases of maternal health should be pushed, and, when necessary, through the use of such media as pamphlets, news articles, speeches, etc., measures created to stimulate community understanding of the need for proper ethical instruction and care of expectant mothers should be promulgated.

The seriousness of activating a program of maternal survival is accentuated by acquainting ourselves with the fact that in any one year of recent date mothers' deaths as a result of complications and sequelae of pregnancy exceed the total death occurring from such communicable diseases as diphtheria, scarlet fever, poliomyelitis, meningitis and typhoid. When one further realizes that these maternal deaths occur in only one period of life, the child-bearing period, and in only one sex, the gravity of the situation is readily apparent.

Any success in improving health services to mothers requires development and maintenance of standards that must be universal, standards that must be carefully thought out, promoted ethically and kept current with newer thinking and a changing world. These standards should be developed as desirable goals; but, if necessary and conditions warrant, they should be set up as minimal rules or regulations and become mandatory. They should be so created as to serve as the yardstick for measuring adequacy of health

services and facilities.

The salvage of lives of infants and children in the last 25 years has been the factor in assessing life expectancy today. Tremendous progress has been made in reducing mortality not only in the infant age group (0-1 year) but also the later periods of childhood. This progress is emphasized by stating that, had mortality rates of a half-century ago prevailed last year, approximately 1,000,000 children 15 years and under would not be with us today, yet 800,000 or more are with us who would otherwise be dead and, everything being equal, they should attain the proverbial four-score and ten. That is progress, but, notwithstanding this tremendous salvage, a dark cloud blots out the sun. Little, if any, progress has occurred in salvaging the life of the infant during the newborn period, the first 28 days of life, and the shorter the period of time after birth, the less marked has been the rate of decline.

As to causes of death in the newborn period, they are rather poorly defined, more so than in later infancy. Prematurity, congenital malformations, birth injuries, infection, these are the most often cited causes.

Speaking in a broad sense, we recognize certain hazards as contributing to infant mortality, particularly neonatal wastage. Specifically, we recognize hazards to be hazards of development and hazards of injury. We know that defects in development occur, culminating in a monstrosity or congenital malformation. We also know that toxemia in the mother or the presence of infection in the mother, such as syphilis or influenza, may and frequently does exert its effect on the fetus. We have also seen where instances of mechanical injury to the mother; injury to the infant incident to difficult labor; abortion, criminal or therapeutic, all have contributed to many needless preventable deaths of the infant. Exhaustion of the infant in trying to overcome an impassable barrier such as contracted pelvis, injury to the cranial vault through injudicious use of forceps, and toxemic conditions in

the mother, as in eclampsia, further add to the deaths of infants, many deaths which perhaps are needless and tragic.

"How Shall They Survive?" Again I must repeat that a program of salvage must begin as early in pregnancy as possible. Since contributing factors to early infant death, even fetal death, have their incipient stages in prenatal life, it is demanding that early and continuous supervision be available to the mother, preferably by a physician of her own choosing but, in any instance, one available in the community. No program is worth a grain of salt if it does not provide an adequacy of continuity and follow-up. Constant supervision and observation allow for a detection of deviations and/or complications early enough to allow for remediable measures to be instituted.

Supervision of the newborn must begin immediately after birth, and, if conditions are favorable, a complete physical examination is done to rule out any condition of immediate danger to the infant. This is then followed by constant medical and nursing observation, regardless of where the delivery occurred. Particularly in home deliveries is it imperative that the public health nurse be involved to the extent of postpartal visitation. In this strategic role the nurse may be the discoverer of hazardous abnormalities which were not evident when the infant was examined at birth. The nurse, however, must be cautioned to refer her observations to the family physician first and through his follow-up efforts the health of the infant will be safeguarded.

If prematurity, congenital malformations or birth injury, our universal triumvirate of killers in the newborn period, are not involved when the infant is born, our next compelling duty is the prevention of infection. Infants do not seek out the lethal organisms. Somewhere a second party is involved, be it through immediate contact or respiratory spread. It is here that the public health nurse plays a major role in a program of "How Shall They

Survive?" Through her efforts the mother is stimulated to maintain early care and observation of her child by her physician or through the facilities, where available and indicated, of the local health department. She it is who can ethically and soundly instruct the mother in the principles of good nutrition and promote the maintenance of a clean, safe, sanitary home environment.

We must consider, if only briefly, the problem of prematurity. Although, we in public health recognize prematurity as a sign rather than a diagnosis, it is recorded as the greatest killer of infants.

The premature infant is born saddled with the threat of death. His immaturity disturbs many physiological functions as well as physical, all of which are not conducive to survival. But we firmly believe, in fact we know, that many prematures can be saved. "How Shall They Survive?" The approach to a program of salvage is a preventive approach. Basically, it calls for a sound maternal health program, continuously promoted and maintained. This program must particularly stress the importance of nutrition of the pregnant woman. It must also allow for the observation, care and, if necessary, treatment of any complications attendant to the pregnancy. This must imply the availability of properly equipped and staffed hospitals where the proper management of a premature delivery will go a long way toward insuring the maintenance of life.

As in a program of maternal survival, the acceptance of hospital standards as guides in infant care will insure a marked decrease in needless deaths. These standards must emphasize desirable and recommended medical procedures and should serve as a baseline for hospital policy.

What can we do to promote the survival of the older infant, the preschooler, the school-age child?

In a report of the Committee for the Study of Child Health Services, American Academy of Pediatrics, 1949, we read the following:

"All children are entitled to preventive health services irrespective of the economic status of their parents. Opinion may vary about the extent which official health agencies should provide these services to certain economic groups. But there can be no difference of opinion about the right of every child to receive such service from either private practitioners or public health agencies."

This statement implies, and rightfully so, that a community child health program must be promoted either to supplement the services of the private practitioner or to provide the specialized services through the facilities of the local health department. Basically, health education of the community as to the value of child health care, observation and supervision are the core of a program of salvage. This educational program must permeate down to the individual parents to alert them to their responsibilities in maintaining the good health and preserving and prolonging the lives of their children.

How does this type of program aid in survival? The public health nurse is the instrument in the picture. She it is who supplements the services of the physician by stimulating the parent to maintain early and regular care of the well child and the handicapped child by the private physician or through the facilities of the health department. It is she who persuades the mother to follow her doctor's instructions. She is also the instructor in the general principles of sound nutrition, in the desirability of maintaining a safe, sanitary, clean environment. She extols the value of early immunizing procedures and the necessity for maintaining a certain level of immunity through recall

injections. All of us must recognize that the widespread use of immunizing agents and the maintenance of high standards of community sanitation are far more effective than placarding a home as a quarantine measure.

Thus we see that in order to answer the question "How Shall They Survive?" a program designed to prevent or alleviate those conditions which contribute to maternal and child morbidity and mortality must be all-encompassing. Certainly it must reflect down to antenatal life with the continued care of the pregnant mother, the maintenance of good nutrition and sound health and the prevention of illness. This objective, in its total nature, will go a long way toward the prevention of prematurity, congenital malformations and birth injury. This is demanded of a sound, ethical maternal program. A further adjunct is the promotion and establishment of measures affecting the child in all age groups. The teaching of good nutrition, the advantages of immunizing procedures, the necessity of periodic physical examinations and observation, the correction of remediable defects and the promotion of a safe environment are all basic tools without which the objectives of a longer life and good health are unattainable.

We could go on endlessly exploring further means of salvaging lives. I have tried to give you a broad picture of what can be accomplished. True, it is somewhat sketchy but if we only continue to remember that as a team of public health servants our job is with and for the people and that it is our aim to expend the health dollar in such a way that the health dividend will be maximum, we shall have accomplished our objective.

DISCUSSION OF DR. MEZERA'S PAPER

EDWARD P. BENBOW, M.D.
Greensboro, North Carolina

I congratulate you and your Program Committee for bringing Dr. Mezera to us. His strength, the wisdom of his

ideas and chosen words are indispensable in the planning of our expanding public health program in North Caro-

lina.

I'd like to express some of my thoughts as Dr. Mezera's words fell upon the ears of a pediatrician vitally interested in the things of which he speaks:

I am immediately cognizant of his awareness of the fact that tomorrow's citizen is but the continued growth of today's child and of the importance he attaches to every item and detail influencing the growth and development of that child from conception through birth, infancy, childhood and adolescence.

I am reminded—by Dr. Mezera's quotation from the *Children's Charter* from the White House Conference—of a British naval captain who stood on the bridge of his ship when it sailed along the African coast in the 19th century. It was loaded with many of His Majesty's troops and their families. The ship struck an uncharted rock, and it was immediately apparent that she would sink. It was also apparent that there were not enough life boats to accommodate the number of persons aboard. (Hence Dr. Mezera's thought-provoking title "How Shall They Survive?") The captain saw his duty and set a precedent followed since by practically all mankind. He called the ship's crew to their stations; called the troops in formation at attention on the decks before him, and ordered: "You men at attention will stand fast. Ship's crew, lower the life boats—women and children go first!" and that was the way it went—and has in every disaster since then.

Dr. Sture Siwe stated it in 1948: "Everything in the world revolves around the mother. The new generation is being formed by her, while the father is engaged in pursuing his special interests. Men may create work of more or less lasting value, yet only the mothers of children are forming lives and shaping human beings." It still stands that maternal and child health and welfare are the *sine qua non* in health and social planning.

I'm glad Dr. Mezera read from the report of the committee for child health

services of the American Academy of Pediatrics in 1949, in which it was particularly stated that there can be no difference of opinion about the right of every child to receive preventive health services from either private practitioners or public health agencies.

I should also like to add a part of the report of a committee representing the American Academy of Pediatrics, the American Pediatric Society and the Maternal and Child Health Advisory Committee of the U. S. Children's Bureau, which was unanimously accepted by the members of the Academy. It committed them to the following objective: "To make available to all mothers and children of the United States all essential preventive, diagnostic, and curative medical services of high quality which, used in cooperation with other services for children, will make this country an ideal place for children to grow into responsible citizens." Hence the academy undertook a nationwide study, and North Carolina was selected as the pilot state for study of existing facilities and services for medical and health care of children.

The North Carolina Pediatric Society undertook the responsibility for this pilot study, and the complete report—finally published in a supplement to the North Carolina Medical Journal in 1948—cited:

1. The dire need for an Advisory Committee on Child Health representing all agencies in the state with major interests in child health;
2. The need for subsidies for physicians in areas of need, including better distribution of hospital facilities;
3. The need for more opportunities for training in child health;
4. The need for rapid expansion of community health services;
5. The need for a total increase in hospital facilities;
6. The need for a program for premature and other newborn infants.

But remember this is the pediatricians' viewpoint of 6 years ago. Remember too that in 1948 79% of the private physicians' care received by

children in North Carolina was provided by general practitioners.

We must now bring all physicians to an acute awareness of the facts and figures as they exist in our own State and compare them one by one with those related here by Dr. Mezera.

He has given us the "Whys," and in so many instances the "Hows" in relation to our acknowledged responsibilities for maternal and child health services. We must now supply the "When." We must realize that medical knowledge is useless unless we are able to apply it for the common good and to make it known and understood to society as a whole. The difficulties at times seem overwhelming, but courage and persistence will bring us to our goal:

"To let *all* children enjoy the benefit of scientific advancements and clinical applications; to make available a place where every American mother will be able to go for advice, to present a widespread campaign to inform them about available facilities, and to provide sufficient hospitals and clinics to meet everybody's needs." Dr. Mezera has repeatedly emphasized the idea of prevention first and then adequate treatment. The ramifications of both are myriad and are paramount to the preservation of health and to the saving of lives. Indeed, we are grateful to him for focusing our thoughts so clearly and for pinpointing the minute details of the over-all program of maternal and child health. He has even mentioned the necessity for control measures for the prevention of German measles—a mere speck on the wide panorama reviewed for us here. Yet we are forced to assume our own duties in this regard; to evaluate the problem of the risk of congenital malformation and stillbirths resulting from maternal infection during the first trimester; to

learn to diagnose the disease accurately; to properly evaluate the role of Gamma Globulin in preventing rubella; and finally, to make up our minds whether or not to institute a more effective program for attacking the rubella problem by deliberate exposure of girls to the disease before the child-bearing age, with rigid control necessary to avoid exposing gravidas.

It occurs to me that there is one concept which might be advantageously included in the general foundation on which adequate maternal and child welfare programs must be built.

Why not include in our educational campaign the dissemination of newly gained medical information and ideas on the probable desirability of family planning and birth control under these possible tragic conditions:

1. In those instances where child-bearing is definitely detrimental to the health of the mother; where there is a possibility of diminishing her activities at home, or of removing her from the family circle completely?

2. The prevention of the birth of another child in a family where there is hemophilia, epilepsy, familial idiocy or muscular dystrophy?

Isn't it a part of our preventive medical and health program to present the consequences of further family expansion to those non-comprehending parents who are faced with these tragic conditions?

We can see how the ideas and words of our speaker serve to stimulate a whole new, broader segment of activity which must necessarily fit and dovetail into the general plan for maternal and infant care. He has given us ideas, has made us want to start moving and has even provided us with maps to follow. What we need now is to "Hitch up old Bess and get down the road."

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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

EFFICIENT MANAGEMENT IN PUBLIC HEALTH

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Efficient means highly capable or productive. Management means judicious use of means to accomplish an end. "Efficient Management In Public Health" means the judicious use of all available means and resources in the art and science of preventing disease, prolonging life and promoting physical and mental efficiency through organized community effort. Since this is a continuous process difficult of final accomplishment, the chief function or purpose of management becomes one of improving and increasing the services rendered by wise and stimulating guidance of the staff and coordination of all health activities.

Efficient Management in Overall Administration. In this day when there is a tendency for governmental budget boards, county delegations or commissions and taxpayers to look intently at overhead expenses of all agencies, some State Boards of Health seem inclined to dispense with State and District supervisory personnel and assign them as field workers, and some departments are discussing the idea of replacing registered nurses with licensed practi-

cal nurses, replacing sanitarians with "inspectors" and replacing health officers with lay administrators. It behooves those of us who have observed these tendencies over the past several years to take stock and determine why this has occurred. Is it because of a real shortage of personnel and the fact that individual staff members are better trained and, therefore, need less supervision and management, or is it because our management is so indifferent and inefficient that those in control of the money feel that it can be more effectively used by employing a larger staff of lesser trained and qualified personnel at lower salaries? If the health officer is concerned only with the medical aspect of his job and pays little attention to efficient management of his staff and program, then the question may well arise: Should not his full time be spent as a clinician and he be replaced with a qualified lay administrator? However, I think that this should not apply to supervisory personnel and staff workers in every unit. In the small and medium-sized health unit of six to eight employees, we should strive to have every member of the staff well educated and trained so as to require a minimum of supervision. Little economy can be effected by the use of less-trained and less-qualified

personnel in such units. In units with large staffs, it may be possible to save some money by the use of less-trained and less-qualified personnel, such as practical nurses, nurses aides and inspectors to carry on some of the routine functions in clinics, to check on nuisance complaints, etc. When such personnel are to be used, it becomes mandatory to have well trained and qualified supervisory staffs if efficiency is to be maintained.

Continuing progress and improvement of health services are, in part, dependent on research and increasing knowledge in our health sciences, but of equal or even greater importance is the improvement in the efficient application of this knowledge to meet the needs of the public. This latter is the direct responsibility of local health departments. Therefore, my remarks will be confined to local health unit activities. Local health units will discharge this responsibility most successfully if they have flexible programs built on the needs and expressed desires of the people in the community. With the gradual shift from the control of acute communicable and infectious diseases to those of a chronic nature and with the shift in population from youth to the old age group, we must shift our interests so that we include in our program not only the prevention of the onset of illness but also the prevention of the progress of disease, of its complications and of the disability that may follow. Failing to prevent disability, we must rehabilitate the individual to his maximum physical and mental efficiency and aid him in his emotional and social readjustment.

Efficient Management of Staff. To administer this type of program would require a well trained and qualified staff of sufficient size to meet the needs of the population involved, but, as stated in the beginning, we cannot expect to have sufficient staff and facilities to obtain a full and complete solution of all problems and meet all needs at once; therefore, in discharging these responsibilities, our programs must be based on community needs and re-

sources, must be flexible so as to change as needs are recognized and be of a type that can be adapted to the size and quality of the staff, remembering always that when we can't increase its size we can always improve its quality with in-service training, wise guidance and stimulation.

Staffs come in a variety of sizes and quality and, like equipment, are purchasable within the limits of the budget. However, there are other factors, such as a local availability and political expediency, which have a definite influence so that the administrator, whether a newcomer or veteran, may find the size and quality of his staff predetermined by these factors alone. This by no means justifies letting the staff remain in status quo. (An elderly judge in my home town has a servant who, through long association, has learned several legal phrases which he uses and defines to suit his needs. Recently during the judge's illness the servant met a personal friend and this conversation ensued: "Good mornin'! How's the Jedge?" "Oh, he's just stature quo, just stature quo." "What do you mean **stature quo**?" "Boy dat means he is a powful sick man.") So it is with a health department that remains in status quo for a long period of time.

What are some of the things the administrator can do to insure the efficiency of his staff, regardless of its existing state of training and experience? First, he can establish a smooth-running office. Every employee's efficiency is materially affected by the overall conditions under which he or she works. If one is to have a smoothly operating unit, all policies should be clear-cut and easily interpreted and understood. If policies are to be clear-cut, then the objectives must be accurately defined. Work hours, vacation time and leave policies should be established on a fair and impartial basis. The work load of employees should be equitably distributed, taking into consideration the geographical area, population density and health needs of the assigned territory. The fiscal affairs of the office should always be in good order, with

adequate pay based on training, responsibilities and efficiency. Too often we begin with the established salaries and then, when funds become available, every member of the staff receives a percentage increase without consideration of his qualifications or efficiency in his assigned task. Job tenure and promotion should be based on quality and effectiveness of work rather than on the personality pull of individuals. There must be a good record system. Assuming that we have a smooth-running office with a good record system and suitable arrangements for orientation and training, we are still faced with the necessity of having the entire staff operate as a unit. The staff should function as a unit in a democratic manner, using group opinions on broad policies and individual conferences when it concerns one individual's work. There should be not only frequent conferences of supervisory personnel in large units but regular meetings of the entire staff. In small units without supervisory personnel, the entire staff should meet frequently. All of these are necessary if the staff is to have a feeling of security and contentment.

Efficient Management of Individual Members of Staff. An entire staff can sometimes be upset by the personality of one individual. This is where an administrator faces his most difficult and agonizing problem. In all such cases one should remember that emotional problems and personality defects are not self-limiting diseases and cannot be cured by treatment of symptoms and waiting for the crisis to pass. The basic causes must be found and treated or eliminated. Failing in this, the employee must be discharged. Even the smallest staff is larger and more important than the individual member. However, emotionally stable individuals can be upset by continued unstable working conditions. Every effort should be made to avoid them. All workers and their work need a reasonable amount of supervision and evaluation. This is needed to correct or improve faulty and inferior work and to praise good work. Every staff member's work, good or

bad, justifies recognition by the manager. Too often we overlook bad work and fail to praise good work. Every human, in addition to his emotional need for love and security, craves recognition and the assurance that he and his work are significant. The delegation of authority and responsibility carries with it the obligation of sufficient supervision and guidance to insure efficient discharge of duty.

Every staff member's efficiency can be improved by additional training and individual guidance. This can be done by the administrator, the supervisor or a fellow staff worker who has had the benefit of better training and/or experience. When a new member is added to the staff, it is necessary that he have a reasonable period of orientation, even though he may have an adequate education and prior experience with another department. This need for orientation is imperative when there has been no previous experience in public health work. Part of it is better given by a unit that has a large and well trained staff and should be taken in a county other than the one in which he is being employed, because, when a staff begins to orient its own employees, the tendency is to shift them into their regular assignments without adequate overall orientation in public health practices. Postgraduate and in-service training is likewise mandatory for those who have not had any. Like orientation, this in-service training should be given by those who are able to teach and demonstrate public health activities, preferably in a well organized department adequately staffed for this purpose.

Efficient Management by Individual Staff Workers. Individual staff workers are managers in the same manner as administrators and supervisors. It is true that their responsibilities and the scope of their activities are more limited. However, they have the same responsibility for the efficient planning and conduct of their work. It is their responsibility to function as a member of the team. They must keep adequate daily, weekly and monthly records

which are as necessary for the planning of an individual's work as they are for planning the overall duties and the program of the entire staff. Modern public health practice requires that individuals go beyond the routine performance of their work. In fact, no work should ever be treated as routine. Each home visit or environmental survey is an individual activity different from every other. Each person attending a clinic or seeking advice is a different individual with individual problems. His is an individual personality that always reacts differently with the personality of the public health worker. This requires constant revising and changing of methods of approach to a given problem affecting different individuals.

Efficient Management in Program Planning. What is a program? Should it not be planned procedure toward a chosen objective? Too long now have we been quail hunting in public health, i.e. using shotgun programs on covey objectives. Just blazing away, hoping to hit something. Frankly, fifteen or twenty years ago this produced results. When typhoid, smallpox, diphtheria, V. D., hookworm, malaria, infant diarrhea and similar diseases afflicted a large percentage of the population, most any action paid big dividends. Today we must literally pin-point our objectives and accurately aim our procedures. It is one thing to know we have fifty cases of active tuberculosis on register or that we annually have fifty cases of diphtheria or early V. D. but, if we are to aim our procedures, we must know where they are geographically and in what social or economic groups they exist. I realize that one of the difficulties of the local administrator is keeping his program balanced in the face of pressure by directors of categorical programs originated at the State level and pressure from local voluntary agencies, each thinking that its particular program is the most needful and urgent of all. The efficient administrator will incorporate all these activities in his program but will emphasize each in proportion to local

needs as determined by his own evaluation and appraisal.

Informing and educating the community regarding the program and bringing them in on the planning and execution of the activities are necessary to insure that the program will be acceptable. Finally, the program must be adapted to the capabilities of your staff. It is sometimes advisable to set your objective a little above staff capabilities as an incentive to raising its level of efficiency, but the program must not be so far above the staff's capability that it leads to frustration of personnel or makes it impossible to render services expected by the community after you have publicized your program.

The A. P. H. A. outlines "The Local Health Department's Services and Responsibilities" as seven. Let's examine these in relation to our topic.

Efficient Management in Recording and Using Health Data. One of the basic responsibilities of a health department is the proper recording and analysis of health data, i.e. births, deaths, notifiable diseases; maintenance of registers of individuals known to have certain specific diseases or disabilities; and the collection and interpretation of morbidity data from all available sources. A study and analysis of these records will frequently bring to light unrecognized health needs.

There is need for a record system that not only contains health data but also records activities of the staff and contains all the data that can and will be evaluated to the betterment of the service. These records should list the number of home visits, clinic attendance and facilities and environments inspected or surveyed. More important, they should tell what has been accomplished as a result of these activities. Quality, not quantity, of services rendered denotes efficiency. If this is done, it will assist staff members in planning their day-to-day work, serve as a basis for program evaluation and revision and become documentary evidence of work accomplished. This last-mentioned can be used to justify the expenditures of funds received as categorical grants.

Most public health employes have a congenitally acquired and administratively aggravated aversion to filling out records and making reports. Always ask yourself: Will it be useful and will it be used? No record should ever be adopted if it serves only to collect data and dust.

The keeping of registers of individuals who are known to have certain chronic diseases or impairments is usually referred to with a great deal of pride by the administrator; however, frequently they are not put to good use because they are not analyzed and reviewed from time to time. A study of these registers will often show that certain diseases tend to be more prevalent in certain geographic areas or among certain social and economic groups. This should lead to an evaluation of that particular program to determine if it is meeting the needs of this particular area or group.

Efficient Management of Health Education and Information. Every public health worker is daily engaged in health education, teaching and giving information. While he may not realize it, the truth is that every public health activity is, or at least should be, of health education value. Otherwise the activity has been inefficiently performed. We must educate as we serve. In addition to this daily educational work, we must also have a planned program of health education and information; otherwise the community soon takes our activities for granted. Like any other program, this one must always have a definite objective. The promiscuous distribution of literature, showing of films, furnishing articles for newspapers and using radio and television should not be done simply for the sake of being able to list these activities in our annual reports. If we decide to stimulate or motivate the public, then it must be for a definite purpose. If a film is to be shown, it should be in support of an educational program toward a definite objective. Organized classes should be well planned and the teaching supported by all the educational media available. For-

tunate is the health unit that has a trained health educator on its staff, for he is an expert in the efficient management of all the tools of health education. Every State department now has one or more health education consultants who are available and can be of great assistance, not only in health education programs but in stimulating community interest in health activities and assisting in the overall program planning of the local unit.

Group teaching can save much time in giving basic information on diet, preparation of baby formulae, operation of food-handling equipment, etc. This method is also applicable to groups having similar problems, such as food handlers' classes, classes for diabetics, the obese, etc. However, we should not forget the adage—"What I hear I forget. What I see I remember. What I do I know." This means that classes and group instruction will have to be supplemented with individual counseling and teaching regarding those activities that the individual must know.

Efficient Management In Supervision and Regulation. The laws of our states give health departments legal authority to supervise and regulate many activities in the field of health. If a department frequently finds it necessary to resort to legal action, then it is performing this responsibility in an inefficient manner. Health laws and regulations are usually established to set a standard and serve as a starting point for the education of those concerned. Only as a last resort should we take legal action to enforce them.

Is it not better to keep in touch with housing projects and contact the development agency early so as to inspect the site, test the soil and agree on size of septic tanks, etc. instead of waiting until the buildings and tanks are completed and we are asked to make final inspection? We should prevent public health problems as well as disease.

Are we to continue our program of inspecting dairies, foodhandling establishments or other institutions in a routine manner with a check sheet and grade card? When are we going to

organize classes for operators and their staffs to educate them to properly operate their facilities and assume responsibility for compliance with regulations and then, less frequently, survey their establishments and counsel with them regarding efficient operation that will not only protect the public but pay dividends to the owner?

Efficient Management in the Provision of Direct Environmental Health Services. With the rapid advancement in health consciousness by the public and the rise in our economic level and general standard of living, many of the direct environmental health services are no longer required and could be dispensed with if we would educate the public regarding them sufficiently for individuals and families to assume more responsibility for the control of their environment. The efficient health department will only engage in those activities which require the use of trained public health personnel and which cannot be carried out by lay individuals and groups.

Now that we have practically eradicated malaria, are we going to keep up a spray and fogging program to keep people comfortable or are we to educate the public that this activity is no longer a health measure and should be transferred to another agency, using personnel not trained in public health procedures?

Are we to keep on advocating the building of pit privies in rural areas when we know full well that even a trained health educator could not motivate you and me to use one in the cold gray dawn of a winter's day? Would it not be better to raise our vision from the lowly pit and observe the new REA lines that have been extended into rural areas and persuade the home owner to install an electric water pump which eventually will lead to the installation of a plumbing system and proper sanitation of the entire home environment?

Efficient Management in the Administration of Personal Health Services. Improved sanitation and the use of modern drugs and treatment have

markedly reduced the need for some of our immunization programs. If this responsibility is to be efficiently discharged, we must review our morbidity data and adjust our immunization program to fit present day community needs.

Are we to continue to routinely give typhoid inoculations to large groups of citizens now living in a sanitary environment, without a single case of typhoid over a period of years, just because we have trained them to submit to the annual roundup? Would it not be better if we analyzed the morbidity records and surveyed the environmental sanitation of the various communities and limit such programs to those where they are needed, thus saving the time of personnel for use on more urgent problems?

When are we going to stop limiting our rabies control program to immunizing household pets and subjecting children to painful and somewhat dangerous injections of anti-rabic vaccine and begin to attack the problem at its main source by preventing stray and ownerless dogs from running at large throughout the community?

Are we going to keep on making chest X-ray surveys in which we routinely X-ray the same individuals year after year, even though we find little or no tuberculosis in this group, just because they are readily available and we are determined to do a certain number of examinations each year? Would it not be better to concentrate on those communities and social or economic groups which are less readily available but would yield much higher dividends in cases diagnosed?

Are we going to keep inspecting school children by the thousands just because we have them congregated in an easily accessible place and wish to point with pride to a large number of individual services? When are we going to concentrate our activities on those pupils that have been screened out by teachers under the guidance of nurses, because of some obvious physical defect, because they are unable to keep up with their school work or else de-

velop into classroom problems, and then secure adequate examinations, physical and mental, to determine the cause so we can take steps to correct them through family and/or community cooperation?

Efficient Management In the Operation of Our Health Facilities. We go about constantly preaching efficiency in the operation of restaurants and schools and in the sanitation of homes and their environment, but I ask, in all sincerity, do we practice this in our health centers, auxiliary centers and other places where clinics are conducted? Just because we use an auxiliary center a few hours once or twice a week, that is no reason why the yard should be knee high in weeds and the surroundings in general like those of a deserted house. The building and surroundings should be neat and clean. There should be a posted schedule of the clinics of sufficient size and so placed that it can readily be read by citizens passing in their cars. The first law of efficient management is to practice what we preach.

Efficient Coordination of Activities and Resources. In addition to the efficient management of his staff, it is the administrator's responsibility to coordinate its work with that of all other community agencies concerned with health. It is true that many of the details of the cooperation between various agencies can be carried out by the junior members of the health department staff and those of the various agencies; however, the top administrators of all agencies concerned are responsible and, therefore, should initiate the overall coordination of work by their combined staffs.

It is true that supplying all the health needs of a community is not the exclusive responsibility of the health department, but is a joint responsibility

of the allied medical, nursing and dental professions, voluntary health agencies, service clubs, official governmental agencies and the citizens who are consumers of the service. Nevertheless, the health department staff must provide the leadership in coordinating all these community resources to the end that the health needs are met. Unless this is done, then much inefficiency and unnecessary expenditure of both public and private funds will result. It is amazing to see how a community's health resources can be brought into play and coordinated during an emergency or local disaster. During such time every agency and organization forgets its vested interests and agency ambitions to pitch in and do a job. It does seem that we should be able to do the same on a long-range basis so as to guard and improve the health of the people and be better prepared for emergencies and disasters.

One of the greatest helps in the coordination of the community agencies is for the individual members of the health department to really become citizens of the community in which they live and/or work. This should be done in the capacity of lay citizens but by using the knowledge which they have as health workers to enable them to become leaders in all community activities pertaining to health. For this reason, it is my belief that health department personnel should be assigned on a geographical basis and that these assignments be permanent or, at least, that personnel not be rotated so frequently that they never get to learn the needs of their assigned area or know the people intimately enough to counsel and work with them as group or community leaders.

In conclusion, if we are to be efficient in public health practice, each of us must believe in it, be loyal to it, study it, work at it and actually live it.

THE EASTER SEAL SOCIETY

A Program and Financial Report for the Fiscal Year Ending August 31, 1954

By ALBIN PIKUTIS, Executive Director,
North Carolina Society for Crippled Children and Adults, Inc.
Chapel Hill, North Carolina

It is with gratitude that we have this privilege of reporting to the people of North Carolina on the use of funds made available to us through the annual Easter Seal Campaign. Much of the information contained in this report is filed in detail with the State Department of Public Welfare, our licensing agency, and the National Society for Crippled Children and Adults, our parent organization. The public is further informed of the Society's activities, both financial and service-wise, through its monthly publication, the "Outburst," and through the annual report of the executive director. We wish to thank the State Board of Health for this opportunity of reaching additional thousands through the **Health Bulletin**.

Among the principal objectives of the North Carolina Society for Crippled Children and Adults and its local affiliates, are to engage in activities to improve the health, welfare, education, rehabilitation, employment and recreational facilities and opportunities for crippled children and adults of the State, regardless of race, creed or color; to cooperate with all public and private agencies in any and all services for the crippled and handicapped; to expend every effort to meet unmet needs; and to establish and operate projects rendering direct service to the handicapped in accordance with the definition of crippling and the principles of program planning of the Easter Seal societies.

For the purpose of the NCSCCA, a crippled child or adult is "an individual who by birth, illness or injury, is deprived of normal neuromuscular functions." Under this definition are included crippling conditions due to infection and to developmental defect or injury

before, during or after birth; those due to trauma; those due to pathological bone conditions or developmental diseases; and congenital orthopedic and related neurological anomalies.

The NCSCCA receives its principal funds from the annual Easter Seal Campaign. Close to 73 per cent of all funds received come from the mailing of seals, which is acknowledged as totally non-pressure and voluntary, and consist of many thousand \$1.00 contributors. Additional funds are obtained from coin containers (3%), school sales (9%), lily parade (5%), and special events (8%). The Easter Seal Society has never encouraged direct or in-plant solicitations.

This report is based on expenditures and services for the fiscal year ending August 31, 1954, for which funds were obtained from the Easter Seal Campaign held in the spring of 1953. The NCSCCA receives its funds from the Easter Seal Campaign directed at the county level. Of all the funds raised, 55% of net receipts remain in the county for local services and 45% are allocated to the State office. The State office pays the National Society 8.3% of gross receipts out of its 45% allocation. These funds are used to support a national program of care, treatment and education. Last year, with the initial beginning of a research program by the National Society, the State office paid an additional one-half of one per cent of gross receipts. Contributions to the research program will be increased to one per cent this year, and two per cent each year thereafter. Over 90% of all funds raised through the Easter Seal Campaign remain in North Carolina to help our crippled children and adults.

In 1953, a gross of \$145,769.94 was

raised through the Easter Seal Campaign, at a cost of \$17,846.03, which left a net of \$127,846.03 for local and State programs. Of this amount, \$68,983.21 was retained by local societies, \$12,098.90 was allocated to the National Society (8.3% of gross), and \$42,765.03 to the State Society. The NCSCCA spent \$30,670.59 during the 1953-54 fiscal year and reserved \$10,000 for a rehabilitation program or state project to be developed in the near future. The Society's fixed assets total \$26,130.20, consisting of land and building in the amount of \$14,369.31, house improvements of \$558.58, and furnace, furniture and office equipment valued at \$11,202.31. The second floor of the State office is rented as apartments, for which income is received.

Of the 100 counties in North Carolina, 95 participated in the Easter Seal Campaign. Most local affiliates are governed by duly elected officers, an Executive Committee, medical advisors, boards of directors and Service Program Expenditures committees. There are instances where local societies are not fully organized and where they operated as small committees. However, each county society is being urged to adopt local by-law, and meet full requirements of membership before being chartered. Local societies work closely with health and welfare agencies and other community organizations in determining needs before expenditures are approved.

Expenditures during the 1953-54 fiscal year were, for the most part, in the area of direct services. Some local societies support, either wholly or partially, centers for the care and treatment of handicapped children. These are located in Asheville, Fayetteville, Gastonia and Wilmington. In addition, speech rehabilitation centers have been held in Newton, Tarboro, Hickory, Wilson, Sanford, Hamlet, Salisbury, Goldsboro, Wadesboro, Washington, Smithfield and Carthage.

A total of \$55,899.71 was expended by local societies covering all phases of services to the handicapped. Of this amount, \$14,023.38 was spent for the

purchase of aids and appliances (wheel chairs, artificial limbs, etc.); a sum of \$17,269.01 for physical, occupational and speech therapy, hospitalization, surgery, medication, x-rays, etc.; \$6,589.26 for education (homebound instruction, special classes, tuition, workshops for professional personnel, etc.); \$4,713.82 for transportation to hospitals, clinics, schools, etc.; \$4,241.37 for personal services, such as salaries for case workers, clinicians' travel expense, therapists' salaries, etc.; \$3,444.14 for camperships to the Easter Seal Crippled Children's Camp and Camp Sky Ranch; and \$3,758.50 for scholarships to teachers entering and working in the field of special education and for grants to schools in support of special education workshops, centers and hospitals providing care and treatment programs for crippled children. The sum of \$1,860.13 was spent for general expenses, such as parties and camp activities for crippled children, Christmas parties and special entertainment.

A total of 3,473 handicapped children and 801 handicapped adults received help through local and State programs. These services covered the above expenditures and included such handicaps as poliomyelitis, congenital deformities, amputations, speech defects, cerebral palsy and crippling conditions due to accidents. It is significant that the Easter Seal Society operates at the local level entirely without any paid staff members. All services rendered are provided by volunteers.

The State Society is governed by a Board of Directors consisting of three members from each of 12 districts in North Carolina. Policies are determined by the Board of Directors and Executive Committee, in cooperation with a Medical and a Program Advisory Committee. All serve on a voluntary basis, and they come from all walks of life. In the fiscal year 1953-54, the State Society operated with an executive director, one field representative, one office supervisor, one full-time and one part-time secretary, a part-time shipping clerk (during the campaign only) and one part-time multilith operator.

The staff at headquarters devotes much of its time to local societies, assisting with chapter organization, program planning, development of parent study groups and the Easter Seal Campaign. A total of 180 field trips were made, with travel averaging approximately 20,000 miles. Attendance at meetings, conferences and chapter affairs totaled 230.

Operating expenditures for 1953-54 fiscal year amounted to \$30,670.59, and were expended in the following manner:

Administrative -----	\$ 6,528.76
Chapter Development and Guidance -----	7,272.67
Education Services and Grants -----	9,289.89
Direct Services -----	2,791.39
Easter Seal Campaign ---	4,787.88
	<hr/>
	\$30,670.59

The NCSCCA provides direct services to those local areas where no formal chapter exists. Consequently, these expenditures have remained low in the past because of the small amount of funds currently made available in most of the counties. Included among direct services is the cost of the Easter Seal Camp for Crippled Children held last summer at Camp New Hope for 52 orthopedically handicapped children.

Since 1947 the N. C. Society has contributed over \$25,000 in grants to our colleges in support of special education summer workshops and clinics. The Society will continue to assist with this program until such time as the need is met through legislative and other channels. Grants totalling \$2,500 were provided to East Carolina College, Western Carolina College and the N. C. College at Durham. Additional grants were made to the Duke Anti-Convulsive Clinic and the State Parent's Association for Handicapped Children.

The Daisy Alice Ward Fund, while not officially a part of the assets of the North Carolina Society, is in the custody of the executive director and hence a responsibility of the Society. The fund was established by legislative act on April 14, 1951, from unexpended

contributions received as a result of an appeal by Mr. W. E. Debnam, well-known radio commentator, to help defray the expenses of hospital care for severely burned Daisy Alice Ward of Edenton, North Carolina. The purpose of the fund as established by the legislative enactment includes assistance "for the immediate needs of any child, regardless of race, who needs emergency treatment over and beyond that available by the ordinary welfare provisions of the law and the ability of the parents or family of such child to provide." Expenditures are limited to such care and medication as special nursing, blood plasma, special medication, etc., and to children who have been burned or injured because of accident. The fund is not for the purpose of paying hospital bills or doctors' fees. A total of \$2,705.75 has been expended to date, and a balance of \$9,465.37 remains at present.

The Easter Seal Research Foundation of the National Society is directing a modest research program which will develop measures for the prevention of physical and associated disabilities or improved methods for their treatment. The program will encompass prevention of physical disabilities and the preparation of the physically handicapped for useful work through improved methods of treatment. The program will receive its entire support from special allocations from the Easter Seal societies across the nation.

An important phase of our service is directed to parent education. Reprints, leaflets, pamphlets, books and other publications are available to parent study groups, as well as doctors, volunteers and other specialists working with the handicapped. Parent study groups receive monthly packets at no charge. A total of 5,000 reprints were distributed during the past fiscal year. Other publications available from or through the North Carolina Society include:

The Crippled Child Magazine, published by the National Society
The Crippled Children's Bulletin, also a national publication

The Outburst, a publication of the N. C. Society.

The Outburst is mailed monthly at no charge to a mailing list of approximately 2,500. The Society has a number of films and special displays for meetings and other purposes. A total of 32 film loans were made to groups and individuals.

It is estimated that there are approximately 130,000 handicapped children and adults in North Carolina. Some splendid services are being provided by the State- and Federal-supported agencies and other organizations. The Society is interested in the development of a rehabilitation program with the possibility of developing this service in conjunction with one of the medical centers in North

Carolina; in the establishment of a state-wide itinerant therapy project which would meet needs in the rural areas of the State and provide those services which the tax-supported agencies need and are ready and willing to purchase; a study and evaluation of the camp program to determine its position in a long-range plan; and emphasis to be placed upon the recruitment and training of needed rehabilitation personnel in such fields as physical therapy, occupational therapy, and social service in addition to special education.

It is with a very deep sense of appreciation that this report is presented to the people of North Carolina who contribute services and funds in making the Easter Seal program possible.

NOTES AND COMMENT

By THE EDITOR

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION AWARDS

The North Carolina Public Health Association grants three basic awards each year:

1. **Reynolds Award**—Is limited to an individual for outstanding contributions to public health in North Carolina during the past year, for meritorious service above and beyond the call of duty;
2. **The Association Award**—For an individual in recognition of outstanding contribution to public health in North Carolina over a period of several years;
3. **The Merit Award**—For outstanding contributions or activities during the past year for a local health department or group.

Recipients of the Reynolds Award in 1954 were

Margery J. Lord, M.D.

Frederick J. Wampler, M.D., M.P.H.

The Merit Award for 1954 was granted to Pitt County Health Department, Greenville, North Carolina.

Citations accompany these awards

setting forth the basis upon which they are granted. The citations for 1954 follow:

CARL V. REYNOLDS AWARD

of

The North Carolina Public Health Association

1954

Margery J. Lord, M.D.

A review of the many accomplishments during Dr. Lord's 15 years as health officer of Asheville shows the outstanding leadership which she has continuously exhibited. From surveys to civil defense, Dr. Lord has fearlessly sought for new and better ways to serve her community. The motto "It Can Be Done" prevailed under Dr. Lord's leadership. Regardless of the request, Dr. Lord has the reputation in her area for "doing something about it." The North Carolina Public Health Association particularly cites Dr. Lord for her efforts and selfless devotion during the past year when she was responsible for maintaining public

health services within her area in the face of overwhelming odds. At the same time her leadership sparked and guided the transition and amalgamation of her municipal health department into the existing county-wide organization. At the zenith of her accomplishments as a public health administrator, Dr. Lord further demonstrated the height to which she holds the torch of public health as well as her depth of human understanding and devotion by subordinating her personal position in the interest of perpetuating the public health services which her efforts made a reality to the people of Asheville and Buncombe County.

Dr. Lord's career and accomplishments should serve as an example and inspiration to all the public health workers of North Carolina.

For outstanding contributions to the furtherance and maintenance of public health and for selfless application of its highest principles, Margery J. Lord is hereby presented the Carl V. Reynolds Award.

CARL V. REYNOLDS AWARD

Dr. Frederick J. Wampler

Health Officer, Granville County

In this age when youth is glorified and considered essential for success in most fields of endeavor, it is somewhat unusual to discover an individual who has embarked upon and achieved noteworthy success in a new enterprise after he has passed the Biblical life span of three score years and ten. Fourteen months ago, Dr. Frederick J. Wampler assumed the position of Health Officer in Granville County and instead of pursuing the usual routine line of activities generally expected of one of his age, he launched a rather aggressive program for the improvement of health conditions in that county. Since his arrival, local funds for the maintenance of the health department have been increased 29 per cent in a county having low per capita income.

Failing to obtain from the county commissioners an appropriation of the

county's share for the construction of a health center, through his persuasive leadership, he induced one of the local citizens to donate the county's share for such a center as a memorial to a relative. He also persuaded the city officials of Oxford to provide the county with a beautiful site for the health center. Through his persistent efforts, this new health center will be provided with photofluographic X-ray equipment paid for largely from non-official funds.

As a result of his constructive leadership in the field of public health, Granville County was selected as one of the field training units for supplying training in the clinical aspects of public health to the students of the North Carolina School of Public Health.

His perseverance in the face of apparently insurmountable odds, his ability to locate hidden funds and channel them into the realm of public health, and his intelligent and constructive leadership in public health administration should be a source of inspiration and stimulation to all public health workers in North Carolina.

On the basis of these achievements, the Carl V. Reynolds Award is hereby presented to Frederick J. Wampler.

MERIT AWARD

**Pitt County Health Department
Greenville, North Carolina**

During the past two years the Pitt County Health Department has made phenomenal progress in its contribution to the health of the people of Pitt County and eastern North Carolina. Local appreciation of this development has been indicated by: a budgeted increase of 47%; a long range plan for increasing the number of personnel; a new branch office including an attractive building in Farmville; a written, scheduled plan for salary increments and expense reimbursed in-service activities; and a new health center in the county seat.

New programs have been launched in rural sanitation, milk control, accident prevention, hearing conservation, use of mass education media and rabies

control. The latter was recognized by the North Carolina Wild Life Magazine which gave a feature write-up of this program.

Old programs have been reorganized and revitalized. Especially is this true in the area of venereal disease, with this department reporting more diagnosed cases of infectious syphilis during 1953 than any other unit in the State.

Other counties have been assisted by this department. During the past year it has been the only agency in that area giving a 5-weeks orientation period to the registered nurses in public health employed by other departments, and the staff has given this service unselfishly and repeatedly, never refusing a request from a neighbor department. The television programs planned and presented by the staff have brought public health education via new media to all of eastern North Carolina.

For the reasons above, the Merit Award of the North Carolina Public Health Association for 1954 is hereby conferred upon the Pitt County Health Department of Greenville, North Carolina.

THREE UNUSUAL OPERATIONS NEAR HEART DESCRIBED

Surgical success with new techniques and wider use of blood vessel grafts for patients with serious and unusual vessel disorders was reported today by physicians from New York City, Chicago and Houston.

Three operations were described in the current (August, 14) Journal of the American Medical Association.

In Chicago, three doctors successfully cut and relocated a misplaced vein which pressed against the windpipe and aorta and was threatening to suffocate a five-months old baby. Without the operation there seemed little hope for the infant's life, they said.

In Houston, in perhaps the first operation of its kind, a patient's circulation was stopped for an hour while a new section was grafted into a faulty main artery just above the

heart. The patient suffered no apparent damage to the spinal cord or vital organs which usually follows stoppage of circulation for even a few minutes. "Freezing" the patient by gradual cooling for several hours before the operation prevented damage.

A New York operation indicates a successful surgical method is now available in the "desperate plight" of patients suffering closure of the main blood vessel leading into the heart. Doctors used a preserved arterial graft to start circulation again.

The Chicago infant had trouble breathing just after birth, and at five months "it had become obvious that one of the constantly recurring attacks . . . would prove fatal," Drs. William J. Potts, Paul H. Holinger and Arthur H. Rosenblum said. They said the child's condition was "unique."

"The future of the child was hopeless" unless something could be done, while an operation was dangerous and might accomplish nothing, the physicians said. The parents agreed to the attempt. The child's left pulmonary artery, which carries blood from the heart to the lungs, was cut, moved to its normal position, and sewed together. Since then the baby has been free of trouble except for occasional noisy breathing.

Drs. Michael E. DeBakey and Denton Cooley, Houston, said they performed what appeared to be the first successful graft on the aorta where it arches over the heart. This is the trunk from which the entire arterial system proceeds. Grafts have been used on straight portions of vessels in similar cases of aneurysms, or balloon-like swellings in vessel wall. Grafting of the aorta above the heart has been limited because of the increased danger of blood-deficiency damage to vital organs.

The physicians said their success indicates that "freezing" the patient is an effective way of slowing circulation for long periods while grafts are performed above the heart. Attempts to provide detours for the blood while a vessel is being cut have had limited

application, they said.

Relief has long been sought for patients suffering gradual closure of a blood vessel like the New York patient. Drs. Cranston W. Holman and Israel Steinberg said. Although they have had only a short time to observe the patient since the operation, they said, grafting to replace the stopped-up vessel seems to be "a satisfactory method" and is worth further trial in these cases.

MUSIC PROVED A THERAPEUTIC AID

"In acutely ill patients music often produces effects of sedation and reassurance, while in chronically ill patients music is able to divert the mind during long periods of convalescence and enforced rest," it was stated editorially in the *Journal of the American Medical Association*.

"Patients with tuberculosis, rheumatic fever, malignant tumors, neurological diseases, orthopedic disorders and many other chronic ailments fre-

quently discover that music helps while away tedious hours and removes flights of the imagination to more pleasant and relaxing spheres of thought. This can be accomplished with the aid of background music, records, books, musical instruments and singing.

"Since almost all children enjoy music that is tuneful, accompanied by simple words, and that relates a story, music is especially applicable as a therapeutic modality for the juvenile audience. It is useful as a vehicle accompanying games, and it also provides a pleasant distraction from the disturbing cries that invade pediatric wards of hospitals. It is of particular value to chronically ill children who are required to stay in bed for long periods of time."

Music is a useful adjunct to physical therapy, the editorial pointed out. Mentally defective persons are more easily handled when soothing rhythmic music is performed, and it has been found in dentistry that music allays anxiety, raises the pain threshold, and improves the doctor-patient relationship.

MRS. BELL SERVED WILKES 25 YEARS

(Editorial in N. Wilkesboro *Journal-Patriot*)

On December 1 Mrs. Bertha Bell retired as public health nurse in Wilkes county.

Yesterday marked the end of 25 years service by Mrs. Bell to the people of Wilkes County.

Beginning her duties in 1929, Mrs. Bell served as public health nurse during the latter years of Dr. J. W. White's service as Health Officer and through the many years when Dr. A. J. Eller headed the department and when it was without a Health Officer.

Mrs. Bell, whose retirement was due to ill health, always was genuinely interested in the people she served, especially the children, whom she dearly loved.

She worked faithfully in connection

with the cripple clinic and made numerous trips to carry crippled children to Gastonia and Charlotte for corrective surgery and hospital treatment. Nothing pleased her more than to observe the good results of the work, which often made an able-bodied person of a cripple.

The children whose lives were affected by the work of Mrs. Bell will never forget her kindness, her interest and her efforts to make them well. Her career in Wilkes was one of faithful and loyal service. All who know her wish that her remaining years may be filled with happiness and that she will realize the satisfaction of having served well and long in a position of public trust.

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Kenansville, N. C.

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FREE HEALTH LITERATURE

The State Board of Health publishes monthly **THE HEALTH BULLETIN**, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

Diphtheria	Measles	Residential Sewage
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SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, N. C.

Prenatal Care	Instructions for North Carolina
Prenatal Letters (series of nine monthly letters)	Five and Six Months
The Expectant Mother	Seven and Eight Months
Infant Care	Nine Months to One Year
The Prevention of Infantile Diarrhea	One to Two Years
Breast Feeding	Two to Six Years
Table of Heights and Weights	Midwives
Baby's Daily Schedule	Your Child From One to Six
First Four Months	Your Child From Six to Twelve
	Guiding the Adolescent

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Health Bulletin

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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

OVERWEIGHT CLINIC—CUMBERLAND COUNTY HEALTH DEPARTMENT

MISS BETH DUNCAN, M.S., M.P.H.

Senior Nutritionist

N. C. State Board of Health

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Supervising Nurse

Cumberland County Health Department

Fayetteville, North Carolina

Much is being said and written about the problem of overweight, and it is a subject which is being approached from many angles. In almost every magazine, newspaper and radio and television program articles and comments appear and calories are being attacked with full force. Doctors have long waged the "Battle of the Bulge", and insurance companies are refusing to empty their pockets to potential short "livers". We are sure that, if doctors, insurance companies, commercial companies and many food producers are aware of the dangers of overweight, it is time that public health put her shoulder to the wheel and not only do something to help others who are already overweight but assume her natural and intended role by doing something to help prevent overweight.

In Cumberland County we are doing something. The problem of overweight has long been acknowledged by our health officer, who has continually advised overweight patients he has seen in clinics and examined and treated as county physician to do some-

thing about their overweight problem. He has urged nurses on the staff to integrate into all their generalized programs some effort to induce patients who tend to be overweight to eat less, and also to stress the dangers of overweight to the heart and blood vessels, along with the possibility of diabetes and the danger of being a poor surgical risk.

Not until November, 1953, with the part-time services of a nutrition consultant from the N. C. State Board of Health, was any real organized effort made to help the overweight patient. At this time a clinic for the purpose of examining and giving continuous guidance to such persons was established.

Patients who appeared to be overweight were referred from all other clinics, from homes which the nurses visited, by the health officer and by private physicians. As the clinic has grown, may old patients refer their friends to this clinic. We started with one clinic a month in the morning, but because of the increase in case load and

the demand for an afternoon clinic, the second clinic was started in October, 1954.

The case-load status of the clinic as of December 31, 1954, was as follows:

Patients in active file	54
Patients in inactive file	43
Total case load	97

Number of visits to clinic by cases in active file 140

Number of patients who have lost weight in active file 36.

Number of patients who have not lost weight 13.

Number of patients gaining weight ($\frac{1}{2}$ - 5 lbs.) 5.

Highest weight loss, 35 lbs.

Most of the patients who are in the inactive file enrolled during the first few months of the clinic. Some of these were screened and not encouraged to attend, some were not interested and some probably became discouraged. In the beginning, in order to build a case load, we were a bit over-anxious and not as careful in screening patients for referral as we are at present.

Average Weight Loss According to Number of Visits Made to Clinic.

No. of Visits	Average Weight Loss
7	24
6	28
5	24
4	14
3	13
2	6

We realize that the above data mean very little unless each patient is considered individually. The regularity and number of visits to the clinic is only one of the factors in the problems in losing weight. However, we have found that patients who attend the clinic more often and regularly tend to average a greater weight loss.

We have found that, unless a patient is sufficiently motivated and is sincere in his efforts to adhere to a reducing diet, he will not attend the clinic. Some patients come to the clinic hoping to find an easy, short way to lose weight, and, finding that we cannot do for them what they must do themselves, will not return. However, we

take advantage of the opportunity to educate the patients and hope that it will play a part in motivating them to become more interested later on. Some of the patients have many problems, which are deep seated, and habits acquired in youth are carried over to adult life. In this clinic the family food pattern is usually a high-fat, high-carbohydrate and low-protein diet. Many of our patients also eat high-calorie foods for two reasons, because they have learned to like them and because those are the ones which are available to them. Seemingly, they develop the habit of over-eating during pregnancy or following an operation and fail to return to normal eating habits. Perhaps their activity is limited as a result of their physical condition, but they fail to reduce their caloric intake, so it is these circumstances which start their weight gain. Emotions play an important role in overeating, for some of the patients find that eating a lot of food is pleasurable. In other words, eating is a recreational pursuit. There are some who say that eating relieves nervous tension. There are other patients who are more exposed to temptations than others. Restaurant workers, housewives and cooks are all in frequent contact with food and find the temptation greater.

There is danger of over-encouraging patients as to the rate of weight loss to expect. That may vary with each individual; therefore, we use the approach that weight loss, frequently like weight gain, is a long-range process. Many patients, once they have decided to do something about their weight problem, want quick results; so the workers have a continuous job of encouraging and motivating to keep patients returning to the clinic. There is usually a short waiting period at the clinic, and the group therapy, that is, one patient talking over his problem with another who has the same one, seems to be helpful. The spirit of competition as well as understanding is evident in the conversation between them while they wait.

At the present time the clinic is staffed by the nurse, nutritionist and health officer. During each clinic session the patients are registered, weighed and measured. The nurse takes blood pressure, checks hemoglobin and examines the urine for albumin and sugar. The record is filled out, including a short medical, surgical and obstetrical history, and a history of the patients' weight gain. At this time the nurse also makes an effort to determine the attitude of the patient about her weight, and what motivated her to come to the clinic. If the patient has not had a recent examination (many of those who attend this clinic have been examined by their doctors and referred), the nurse helps her plan to go to her private physician or be examined by the health officer. The health officer is also consulted regarding the recommended amount of weight loss and when this has been attained, she is referred to him for examination. After the interview with the nurse, the patient is seen by the nutritionist, who reviews the diet history and attempts to evaluate the needed caloric intake for each individual patient. Patients are advised in-

dividually, and problems such as food likes and dislikes and the availability and cost of foods are taken into consideration. Frequently fad diets, and even other diets prescribed, are expensive. Therefore, it is very important in planning a reducing diet to make sure that it is planned to meet the needs of the patient and falls within the possibility of his obtaining it. Taking these facts into consideration, a diet is planned for each patient, and time enough is spent to enable him to work it out in a satisfactory manner. Frequently on return visits the diet is reviewed or changed at the suggestion of the patient.

Patients are encouraged to attend the clinic every month, and, when they fail to return, a notice of the clinic is mailed to them. In some cases the nurse makes a home visit to encourage the patient to return.

Although the clinic is still too new to make an official evaluation, it is encouraging that some results have been attained. We are certainly more aware of the need to try not only to help those who are overweight but also to prevent overweight.

JUST HOW HEALTHY CAN YOU BE?

ROBERT F. YOUNG, M.D.
County Health Officer
Halifax, N. C.

The impact of research, education and socio-economic changes on public health has been so great in the past fifty years that its full measure cannot be taken in a brief discussion. So I shall try merely to present some of the present-day general concepts of what we in the official public health family consider to be public health at the present time. We shall use few statistics to describe the remarkable progress in our total health; first, to avoid monotony as much as possible; and, secondly, to avoid an egotistical approach.

I think it is generally agreed that

it is well for a person to begin with a definition of his subject so that he can firmly anchor himself and avoid drifting to and fro with the currents of random thoughts.

In my opinion, the best definition of health today is that which comes from the World Health Organization, namely, "Health is not merely the absence of disease but is the sum total of the physical, mental, emotional and social well-being of the individual."

Public health, to continue with our present-day concepts, is not just "the prevention of disease, but the *prolongation* of life and the *promotion* of phy-

sical, mental and emotional health through organized community efforts."

To further avoid an egotistical approach, so far as the official public health family is concerned, I should like to explain what I shall mean by "we" when I speak of accomplishments in public health.

Formerly, when we referred to public health, we generally thought only of the full-time personnel, namely, the health officer, the public health nurses, sanitarians, public health secretaries and others who were in the local official public health agency. But today we realize that the broad objectives of public health can be realized only through *organized community effort in action*. So the term, "we," today, includes not only the full-time personnel from the local, State and Federal public health agencies and from the schools of public health, but also the physicians in private practice, with their valuable contribution to preventive medicine, the Lions Clubs, with their outstanding program in vision conservation, the other civic clubs, with their worthy health projects, the voluntary agencies, such as the Tuberculosis Association, the local Chapter of the National Foundation for Infantile Paralysis, the local Cancer Society and Heart Association and many others, together with their state and national affiliates, the hospitals, school officials and teachers, and the individual public-spirited citizens who so generously give of their time to the various phases of public health.

The first present-day concept of public health which I should like to emphasize is that today we are concerned with *total health - physical, mental and emotional*. In years gone by, there was a tendency on the part of physicians and public health departments to place emphasis on the purely physical condition of patients. We were interested primarily in whether the patient had a stomach ulcer, heart condition, typhoid fever, tuberculosis or pneumonia.

Today, we are interested in more than just the physical condition of a

patient. We are definitely concerned as well in the emotional and mental phases of his life and in what effect these conditions have on his total health. It has been reported that approximately fifty per cent of the patients who call on our general practitioners do so primarily because of complaints having a mental or an emotional basis. Therefore it is imperative that the *total patient* be evaluated, and he is being evaluated totally, in order to learn the cause of his illness or disability and thereby to be in a position to treat him accordingly as the *total patient*.

To further emphasize this concept of the total patient, Dr. Alvarez, Emeritus Professor of Medicine, Mayo Foundation, in the preface of a recent book of his, tells of his early practice—of the feverishly scientific but sadly misguided diagnoses; of the cases that wouldn't respond to the clearly indicated treatment. Then, he tells of the understanding that came with forty-five years of experience—of the careful searching past the laboratory findings down into the *soul of the patient*, into hopes, fears, desires, worries, mothers-in-law and errant husbands.

In other words, "Many people suffer poor health not because of what they eat, but rather from *what is eating them*."

In public health our patient is a community or the body politic. By the same token, we must carefully evaluate the mental and emotional problems of our areas, as well as the physical, in order to be in a position to plan and execute a public health program that will meet *all the needs of the entire community*.

Our public health diagnosis, too, must be specific, since, just as is the case with the individual patient, no two communities are exactly alike. What would be a good public health program for County A might not meet the needs of County B.

When we consider that over half the hospital beds in America are occupied by mental patients, that one out of every twenty citizens will eventual-

ly require the services of a psychiatrist and that the annual economic loss for individuals housed in mental hospitals in this country is approximately one billion dollars — and remember, also, that we have 750,000 confirmed, chronic alcoholics, approximately 750,000 epileptics and approximately one million patients with various degrees of mental deficiency we immediately realize that the mental and emotional phases of total health are formidable phases that must be met with total planning.

Many of the mental conditions and certainly many of the emotional disturbances can be corrected and the patient restored to a normal and productive life *if only he is seen soon enough* by his family physician, by a psychiatrist or by the personnel of a mental hygiene clinic.

Perhaps the present-day mode of living has a great deal to do with our attendant ills. The pressures of our routine existence are so tremendous that the average citizen today in meeting the complexities of life, lives under a greater strain than did his forefathers.

Someone has said that "worry is the most subtle and destructive of all human diseases". Another has suggested that, in order to take proper cognizance of our present individual status, it would be well to: "take off half a day a week and spend it in a cemetery; wander around and look at the grave-stones of men who are there permanently; meditate on the fact that many of them are there because they felt even as we do now that the whole world rested on their shoulders; meditate, also, on the solemn fact that when we get there permanently the world will go on just the same; and, as important as we are, others will be able to do the work we are now doing." This writer suggested farther that we might sit on one of these tombstones and repeat this statement, "A thousand years in thy sight are but as yesterday when it is past and as a watch in the night."

And so we soon see that, in thinking of health, we must consider total health and, likewise, in planning our public health programs, we must meet the

total needs of the physical, mental, emotional and social well-being of all the people in our area.

JUST HOW HEALTHY CAN YOU BE?

Now I should like to mention and emphasize another concept of public health as we understand it today.

As stated previously, we are not just interested in the absence of disease, but we now have as one of our principal objectives the *promotion and attainment of the highest level of total health* of which a given community is capable and to which this area is justly entitled. *We are interested in positive health.*

A few years ago we had our backs to the wall and were struggling with all our might to *prevent deaths* from diphtheria, whooping cough, scarlet fever, typhoid fever, malaria, infectious diarrhea among infants, tuberculosis and other communicable diseases that ranged the length and breadth of our land. But, through the heroic efforts of the total public health team, with the aid of improved immunizations, through increased knowledge of these diseases, with the coming of the modern miracle drugs, with improved socioeconomic conditions and certainly with a greater awareness of the general public of these conditions, these communicable diseases that once stood as "giants in the land," one by one have been controlled until now we are directing our program toward their utter eradication.

We have changed from defensive tactics to offensive maneuvers. We are not satisfied with just preventing diseases and death but are aiming toward *optimum health* for our given communities. We are not only interested in children's remaining free of communicable diseases and other disabilities such as result from accidents, but we want children who are *robustly healthy*.

We are not content with adults' just being able to follow the routine of earning their livelihood, but we want adults who are at the *peak of health*, who can produce *more goods and more services* and who can enjoy life to the

fullest. We want the cup of health for every citizen to be *full to the brim and even to run over.*

JUST HOW HEALTHY CAN YOU BE?

For example, in years past, we conducted our food sanitation programs for restaurants, meat markets and other foodhandling establishments by routine visits to these concerns, routine inspections and the use of public methods, if you please. But today we plan and promote food service schools which the employers and employees of foodhandling establishments can attend and where they can learn the fundamental principles of *proper foodhandling*. The employers and employees alike, even unto the dishwasher and bus boys, are being made to feel in these foodhandling schools that they have a responsibility and a real challenge to promote and maintain a foodhandling industry that is second to none. So that the thousands of North Carolinians who dine out every day can do so with the assurance that the food served them is appetizing, wholesome and safe.

Another example of the positive approach to our present health programs is the cancer detection and diagnostic clinics which we urge all citizens over 35 to attend who are apparently well, because we want to find cancer when we can cure it, and *not when it is too late*. A Seattle physician who is vice president of the American Academy of General Practice, after he was told he had incurable cancer, stated: "The fear of cancer is a friend of cancer — because it shuts far too many people off from going to a doctor for early diagnosis lest they find they have cancer." We want the citizens of our respective areas to report to these clinics and to their family physicians when cancer can be discovered as it first raises its ugly head so that these people can be restored to total health and returned to society as normal and productive citizens. The same thought applies equally to heart disease — the number one killer today.

JUST HOW HEALTHY CAN YOU BE?

I am sure it is not necessary to point

out that, in the light of our present day concepts of public health, health is purchasable. Purchasable through an adequate public health program in this or any other community. Total health can be bought by organized community effort and by everyone's putting his shoulder to the wheel.

During recent years, we have become accustomed to complex and efficient machines and gadgets. These devices with electric eyes, electronic controls and other mechanisms almost think for themselves. We have automatic transmissions on our automobiles along with power steering and power brakes. We have windows that slide up and down with the push of a button. We have machines that assort and classify data and materials. We have television, 3-D and Cinemascope movies. *Wonderful, we say, and rightly so.* However, in order for these machines to function properly, there must be *constant and adequate maintenance.*

And let us not forget that the most intricate and perfect of all machines is the one made in the image of God—the human being. The average life of this marvelous machine has lengthened from approximately forty-five years at the turn of the century to over sixty-five years at the present time. But this human machine during the added years of life is subject to *new and increased hazards which must be met with total planning on the part of the public health team. This machine, also, requires constant attention and proper maintenance if it is to function properly and to survive the span of years which is its rich heritage today.*

Heart disease, cancer, obesity, mental diseases, accidents and other conditions now loom as the "giants in our land," ready to challenge us at every turn. We must meet these present-day enemies of total health as we met the communicable diseases and other problems of yesterday.

And: "If you have faith as a grain of mustard seed, nothing shall be impossible unto you."

JUST HOW HEALTHY CAN YOU BE?

LIFE AND DEATH IN NORTH CAROLINA IN 1954

WILLIAM H. RICHARDSON
State Board of Health, Raleigh, N. C.

We hear much discussion these days about the future of our public schools. While the problems connected with public education have changed, with the complexities of our modern civilization, no one factor has contributed more to these problems than the continuing and prospective growth in our population. It so happens that with this increase have come new ways and means of preventing death among infants and small children. This means that more children are reaching school age today than ever before. Therefore, the need for educational facilities is on the increase and will continue to be for the duration of the foreseeable future.

During last year, that is, 1954, there were 115,889 live births reported to the North Carolina State Board of Health, as compared with 113,404 in 1953. The 1953 total exceeded that for any previous year in our history, up to that time; but 1954 topped that, by a margin of 2,485. By 1960, surviving children born last year will be ready for school. Each year brings an avalanche of first graders. Primarily, of course, public health is not concerned with the building of new school houses to meet the need brought about by our increasing population; but public health IS concerned with the health of the people, from conception to death. This is a wide range, it is true, but one that brings with it inescapable responsibilities.

Reported deaths, from all causes in North Carolina, in 1954, totaled 32,076, which was only twenty more than were reported the previous year. In view of the increase of 2,485 in the number of births, this was a very gratifying figure. While the increase in the total number of reported deaths was only twenty, as you have just been told, there were 226 fewer deaths among babies under a year old in 1954 than were reported in 1953, while the number

of maternal deaths connected with the birth of 115,889 live babies was only 82, as compared with 118 in 1953, when live births totaled a smaller figure, 113,404.

Let us pause here for a significant comparison. In 1916, when only 76,658 live births were reported in North Carolina, there were 7,112 deaths among babies, under a year old, the infant death rate being 92.8 per thousand live births, while, in 1952, the total number of infant deaths had dropped to 3,929, although there were 111,000 babies born, and the rate was only 35.4. The number of mothers dying as the result of pregnancy and childbirth in 1916 was 593, compared with 113 in 1952, while the rate dropped from 7.3 per thousand live births to 1.0. The 1952 figures are used in this instance, because they include both totals and rates, while the 1954 rates have not definitely been worked out and published.

Let us now turn our attention to deaths in the upper age brackets. Infants and maternal figures reflect, of course, the progress medical science has made in the saving of infants during the first year of life and mothers as the result of pregnancy and childbirth.

Preventive medicine, however, has woven a wonderful pattern of extended life for those who will avail themselves of what it offers, through public health and the medical profession. More people are living to what we term a ripe old age than ever before. Time was when a man was considered old at forty. Now, at that age, he is in the prime of life. Formerly, hiring practically ceased at forty; now, men and women remain in harness as long as they are mentally alert and physically fit, if their employers are farsighted enough to avail themselves of the benefits of accrued experience and ripened judgment.

Let us consider a few of the diseases which, through the efficacy of preventive medicine, now have become almost extinct. In 1954, for example, there was only one death from typhoid fever reported in North Carolina, as compared with four the previous year. In 1916, typhoid deaths in this State totaled 702. Yet, if we should revert to the insanitary conditions which prevailed in 1916 and abandon vaccination as a means of prevention, we could drop back to where we stood approximately forty years ago.

Here is a comparison that is nothing short of amazing: In 1954, there were only 329 deaths from tuberculosis, in all forms, reported to the North Carolina State Board of Health, compared with 3,557 in 1916. The year 1916 is chosen as a comparative year, because it was then that we began keeping an accurate record of all deaths from reportable causes. Now, what has brought about this reduction in tuberculosis deaths? In brief, more accurate and universal reporting of the disease and early treatment. It is not, of course, against the law to contract tuberculosis; but it IS against the law for those who have the disease in the infectious stage to refuse treatment. If they do, they can be compelled to go to a sanatorium and remain there until they become non-infectious and cease to be a menace to society. They may not be able to avoid the disease; but, on the other hand, the innocent public no longer is required to mingle with those who are infected. Without going into figures, it can be stated that North Carolina today is in a better position to provide accommodations and treatment for those with infectious tuberculosis than at any previous time in the history of the State.

Another disease that has been brought under control is diphtheria, which now is practically 100 per cent preventable. Under the law, parents are required to have all children immunized before they reach their first birthday. An overwhelming percentage of parents do this, but last year there were enough negligent parents to cause

the death of eight children in this State. In 1916, however there were 410 deaths from diphtheria among children in North Carolina. There should never be another death from this cause. Parents who refuse to have their children immunized are guilty of criminal negligence.

As previously has been stated, preventive medicine has prolonged the lives of more children than those in any other age group. This means that more people are living to become victims of what we know as the degenerative diseases, prominent among which are heart disease, apoplexy and cancer, which continues to claim the lives of considerably more than half of those who die from all causes in North Carolina every year.

The degenerative diseases of middle and late life have come to be recognized as public health problems, along with accidents and other causes of death which affect people of all ages.

The North Carolina State Board of Health now is making a special study of diseases of the heart, accidents and cancer. One of the most active sections in the entire State Board of Health setup is that which is devoted to a study of home and farm accidents, with a view to their reduction and, if possible, their ultimate elimination.

The fight against degenerative diseases and accidents will be a long and tedious one and must have the support of an enlightened and cooperative public. In the matter of conquering these causes of death, a great deal lies in the field of education. There are no means of immunization against such causes of death as heart disease, apoplexy and cancer. Therefore, they must be dealt with primarily in the realm of research and education. Most accidents are preventable. Heart disease and cancer are not, in the commonly accepted use of that term. However, in the case of heart disease, those who become victims may greatly extend their lives by following the advice offered by medical science. Formerly, physicians hesitated to tell patients they had heart disease. Now, the soon-

er a patient learns that he does have any one of the diseases of the heart the better, because he can begin at once to adapt his way of living to his physical condition.

During recent years there has been a sustained decline in deaths from nephritis. From conversations with practicing physicians, this decline seems to be due to the use of antibiotics and other so-called wonder drugs which cure illnesses of which nephritis formerly was the terminal result. Such drugs may influence the incidence of other diseases. However, we are not prepared to discuss this at the present time.

According to the provisional vital statistics report, there were only 55

deaths from syphilis reported in North Carolina during 1954, as compared with 70 the previous year. No deaths were reported from malaria, Rocky Mountain spotted fever or typhus fever. The poliomyelitis death toll was only 23 for the year, as compared with 34 in 1953. There was very little difference in the number of homicides and suicides reported last year, in comparison with such deaths during previous years.

Dr. J. W. R. Norton, State Health Officer, recently stated that he would like for a study of causes of suicides to be made, with a view of determining whether such deaths might be prevented, if thoroughly understood. This study has not yet been made, but will, in due course.

PROGRAM OUTLINE

Louisiana Public Health Association Meeting

General Session

Registration

Invocation

Addresses of Welcome

Felicitations From and Facts about the Southern Branch, APHA—

Dr. J. W. R. Norton.

Historical Sketches on Public Health in Louisiana—Dr. Ben Freedman.

Public Relations and Public Health—Mr. E. J. Forio.

Tuesday, May 10, 1955—A.M.

Tuesday, May 10, 1955 — P. M.

Section Luncheons

Section Business Meetings

General Business Session

SOUTHERN BRANCH, APHA

Wednesday, May 11, 1955 — A. M.

1st General Session

Addresses of Welcome

Response — Dr. George A. Bunch

Presidential Address

—Dr. J. W. R. Norton

Fringe—Dr. M. B. Bethel

Pioneering in Public Health—

A Heritage of the South

—Dr. Ben Freedman

Luncheon—Governing Council

Luncheon—Sanitation Section

Wednesday, May 11, 1955—P. M.

Section Meetings

Curbstone Planning Meeting

Social Program

SOUTHERN BRANCH, APHA

Thursday, May 12, 1955—A. M.

Curbstone Consultation Program

Luncheon—Public Health Nursing Section

Luncheon—Health Education Section

Thursday, May 12, 1955—P. M.

2nd General Session

Announcements

Internal & External Public Relations

—Dr. Kenneth A. Christiansen

Program Development and Evaluation — Dr. H. E. Hilleboe, President, APHA and New York Commissioner of Health

Inter-American Health Program

Dr. Gustavo Molina

Dr. Charles L. Williams, Jr.

Dr. Jorge Boshell

Dr. Albert V. Hardy

Entertainment

Friday, May 13, 1955—A. M.

3rd. General Session

Where Do We Go From Here

—Dr. Boscoe Kandle

Business Session

Friday, May 13, 1955 —P.M.

Section Meetings

ANNOUNCEMENTS

SPECIAL FIELDS, PUBLIC HEALTH
NURSING, SCHOOL OF PUBLIC
HEALTH, DEPARTMENT PUBLIC
HEALTH NURSING, UNIVERSITY
OF NORTH CAROLINA

Summer Session—July 11-August 5, 1955

Chapel Hill, North Carolina SPECIAL FIELDS IN PUBLIC HEALTH NURSING

Cancer Control—July 11-16 — Miss
Nelson (Monday through Friday)
Home Accident Prevention—July 18-
23—Instructors to be announced
Tuberculosis Control—July 25-30 —
Mrs. Cady (Monday through Fri-
day)

Cardiovascular Diseases—August 1-5
—Mrs. Hall (Monday through Fri-
day)

GENERAL INFORMATION

Admission Requirements: For admis-
sion to Special Fields in Public
Health Nursing, a nurse must be
a graduate of an approved school
of nursing and also registered.
Meeting the regular requirements
of the University will be necessary
for non-nurse students.

Tuition Rates: The fee for the entire
course of 4 weeks is \$40.00. The
charge for one week of instruction
is \$10.00.

Residence: Cobb Dormitory reserved
for students of special Fields.

Single room—\$12.00 a week

Double room—\$8.00 per person per
week.

Tuition and Room Rent payable at
Registration

Registration: In Cobb Dormitory, on
the Sunday preceding the week the
subject is offered.

Application must be made to: Asso-
ciate Professor Margaret Blee, Box
229, Chapel Hill, North Carolina.

NORTH CAROLINA WATERWORKS OPERATORS ASSOCIATION ANNOUNCES

1955 Water Works School
June 6 through June 10

Conducted by the

Institute of Government and the
School of Public Health
University of North Carolina

with the Cooperation and Sponsorship
of North Carolina Section,

American Water Works Association
North Carolina League of Municipalities
North Carolina State Board of Health

The School is operated in conjunc-
tion with the voluntary certification
program of the North Carolina Water-
works Operator's Association, and will
offer intensive preparation for ex-
aminations for "A", "B", and "C" Cer-
tificates and discussion periods for the
advanced group. Lecture and labora-
tory instruction will be presented June
6 through June 9, and examinations for
all grade certificates will be given on
June 10th. The School will be held in
the Department of Sanitary Engineer-
ing of the School of Public Health. For
information, write to Institute of Gov-
ernment or Department of Sanitary
Engineering, University of North Car-
olina, Chapel Hill.

MENTAL HEALTH WEEK

Mental Health Week is to be observ-
ed nationally the week of May 1-7. It is
directed and coordinated by the Na-
tional Association of Mental Health in
co-sponsorship with the National In-
stitute of Mental Health of the federal
government. In this State the Week is
sponsored by the North Carolina Men-
tal Hygiene Society.

The purpose of the week is to make
every citizen aware of his stake in
mental health. Ways in which the
citizen can work through mental health
associates to create better mental
conditions will be presented in pro-
grams of the various sponsoring organi-
zations. Emphasis will be laid upon the
needed facilities to adequately deal

with the problem of mental illness in the state.

Dr. W. Carson Ryan, Chapel Hill, is president of the North Carolina Mental Hygiene Society and Ethel Speas is Executive Secretary. A small steering committee with some fifty county leaders are cooperating in the plans for Mental Health Week.

Cooperating state-wide organizations include: Hospitals Board of Control, Board of Public Welfare, Board of Health, Department of Public Instruction, Eugenics Board, Congress of Parents and Teachers, Home Demonstration Dept., Alcoholic Rehabilitation Program, Council of Churches, Local

Mental Hygiene Societies, Mental Hygiene Clinics, Ministerial Associations, N. C. Medical Society, Conference for Social Service, and others.

You are urged to contact your county leader or the North Carolina Mental Hygiene Society, Box 2599, Raleigh, and offer your assistance in this worthwhile cause.

Facts about the prevention of mental illnesses and the facilities available for treatment of the mentally ill and mentally deficient will be presented by programs, literature and other means during Mental Health Week and in follow-up activities thereafter.

NOTES AND COMMENTS

BY THE EDITOR

SAFETY RULES DURING THUNDERSTORMS OUTLINED

Each year several hundred persons are killed by lightning.

In an effort to prevent such deaths, an editorial in the *Journal of the American Medical Association* presented the following rules for personal safety during thunderstorms:

1. Do not go out of doors or remain out during thunderstorms unless it is necessary. Stay inside of a building where it is dry, preferably away from chimneys, fireplaces, stoves and other metal objects.

2. If there is any place of shelter, choose in the following order: large metal or metal-frame buildings, dwellings or other buildings which are protected against lightning, and large or small unprotected buildings.

3. If remaining out of doors is unavoidable, keep away from small sheds and shelters if in an exposed location, isolated trees, wire fences, and hill tops and wide open spaces.

4. Seek shelter in a cave, a depression in the ground, a deep valley or canyon, the foot of a steep or overhanging cliff, in a dense woods, or in a grove of trees.

"One of the safest places during a lightning storm is in some metal en-

closure, such as an automobile with a metal top, a steel railway coach or a steel building," the editorial pointed out. "A dangerous place is in the middle of a field away from all trees or in a wooden boat in a large expanse of water."

"In a residential area, if the house is higher than the surrounding trees, the lightning may discharge through the building. If the trees in the same vicinity are higher, lightning may discharge through them instead of the house. Pointed lightning rods will discharge the atmosphere and conduct the lightning to the ground. A farmer plowing the field would be safer under the tractor than perched in its seat."

"It is probably unwise to lean against an isolated tree trunk during a thunderstorm. If nothing better is available, it is probably safer to sit under the tree, but one should stay several feet away from the trunk and not touch it."

FAINTING IS ITS OWN CURE; LEAVE VICTIM ALONE

The best way to "cure" a faint is simply to leave the victim lying flat, according to a New York City physician.

This is because a faint actually is a cure in itself, Dr. Alfred Soffer said. It's nature's way of giving the body a short adjustment interval to recover from sudden changes in blood movement.

"Fainting occurs when deep-lying blood vessels throughout the body, but particularly in the leg muscles and abdominal organs, are temporarily widened by paralysis or active dilation," he said. "This dilation—the result of complex nerve impulses — may be brought on by fright, shame, drug reactions, temperature sensitivity, pain and sudden blood loss.

"Contrary to popular belief, heart disease is rarely responsible for fainting," Dr. Soffer said in Today's Health magazine, published by the American Medical Association.

Changes in circulation may cause oxygen shortages in blood moving through the heart and brain. These make the body's protective mechanism work overtime. The body can meet this "challenge," but an adjustment period is needed. A faint and a fall to the ground is nature's way of getting stagnant blood moving back to the heart and brain.

"Forcing a fainting person to sit up will only prolong the unconscious state, and may initiate irreversible damage," Dr. Soffer said.

He also advised loosening a victim's collar to take pressure off sensitive neck blood vessels. Giving him a drink of sweetened fluid after he recovers may help, particularly if he is sensitive to hunger faintness. But aromatic stimulants are of slight importance compared to the value of having the patient lie flat. This is nature's own wise remedy, Dr. Soffer said.

PSYCHOSOMATIC ILLNESS NOT "ALL IN THE MIND"

Internal illnesses resulting from nervous or emotional disturbances are not just "all in the mind," a Philadelphia physician said.

Actually, these illnesses involve nerve channels from the brain to the internal organs, and can possibly be treated by

drugs which slow down or stop the nerves' actions, Dr. J. Earl Thomas said in the Journal of the American Medical Association.

The "dream" of treating such diseases by medicine alone has not been realized. But it is possible to make many symptoms disappear, in a disease such as duodenal ulcer, to "the great relief of the patient."

Dr. Thomas said the brain is "an avenue of communication" between external stimuli and internal reactions, and "confusion in the brain is likely to be communicated to the internal organs." Diseases caused by such errors of function are called "psychosomatic." However, he said any influence the brain has on the body must come through material channels, the nerves. Thus, these mental-emotional disorders do have a physical basis in the nervous system.

"The idea that the viscera (internal organs) are in some way involved in the major emotions is as old as recorded history," he said. Emotions, like other experiences, are responses to stimuli and may react in the same way as ordinary reflexes. Once a response is made, the next time the same stimulus appears the response returns and eventually may come if the stimulus is only suggested, such as by memory or imagination. The nerve chain involved thus becomes a "path of low resistance."

If the pathways are stimulated often enough in the same way, the conscious emotional response and the unconscious internal reaction may become permanently associated. They appear at the same time. This may result even from the appearance of nothing more than the circumstances usually associated with the stimulus. This fact may explain the seasonal or annual recurrence of a disease such as peptic ulcer.

Assuming that some diseases, notably peptic ulcer and ulcerative colitis, are started or become worse because of overactivity of the nerves, interference with the paths of low resistance should prevent illness. Dr. Thomas said this is

possible with drugs which depress the particular nerves involved.

WEATHER IS IMPORTANT TO WELL-BEING

Blaming the weather for "blue" moods and bad colds is not at all unscientific, a Chicago physician said.

The weather was blamed for the common cold as long as 2,000 years ago and scientific investigation has shown that Hippocrates was right, Dr. Noah D. Fabricant said.

In fact, weather changes are reflected in all of the body's processes, and can have an effect on emotions, colds, asthma, heart disease, and even suicide. The weather can often be "the straw that breaks the camel's back," Dr. Fabricant said in Today's Health magazine, published by the American Medical Association.

There's an explanation for it, he said. Tests have shown that "every change in weather involves a physiological adjustment in everyone." For instance, colds increase when temperature drops because the membranes of the nose and throat become altered and fall easy victim to invading germs. In fact, scientists have said that the form of the nose depends on the climate—the colder the climate, the narrower the nose. Eskimos have narrower noses than Africans.

At least somebody is trying to "do something about the weather," Dr. Fabricant said. Taming the weather has become a foremost interest of many engineers, architects, meteorologists, and physicians. Some planners are convinced that buildings could be placed to serve as windbreaks, streets laid out to avoid wind channels, and houses built to reject rather than absorb heat.

One way to prevent the shock of going from an air-conditioned room into the heat, or from a heated room into the cold, is to have a closer adjustment between the two atmospheres.

"Some physicians believe that a number of diseases will respond to controlled weather and climatic conditions," he said. "Though more than a

beginning has been made toward deflating the common cold nuisance, it is reasonable to expect that in the future attention to controlled atmospheric conditions will play a role in ameliorating colds."

ORDINARY BALDNESS CAN'T BE CURED

The first known written medical record contained a remedy for baldness, including fat from the lion, hippopotamus, crocodile, goose, serpent, and ibex. It had one thing in common with modern "cures."

It also failed to cure baldness.

One of the reasons baldness "cures" have continued to appear for thousands of years is that baldness is a "mysterious condition about which people can be easily fooled," according to Veronica L. Conley, assistant secretary of the American Medical Association Committee on Cosmetics.

Another reason is that it is the kind of problem that breeds quackery, she said in Today's Health magazine, published by the A.M.A. The "pseudoscientific arguments supporting most baldness cures" are frequently "so convincing that their unsound basis can be detected only by trained scientists."

For instance, "before and after" pictures of bald men whose hair grew again after using a "restorer" are among "the most potent advertising weapons."

The trouble is that in many types of baldness, hair will return regardless of treatment or lack of it. This type of baldness and "spontaneous regrowth" often follows infectious diseases accompanied by fever, including erysipelas, pneumonia, typhoid, and influenza. Serious loss sometimes follows childbirth or surgery. In all these conditions, normal hair growth returns without help.

But for ordinary baldness, massage and hair tonics with or without vitamins, hormones, ultraviolet light, diets, sulfa drugs, and antiseptics have "no special place" in treatment. A complete physical examination to discover a possible cause in disease is wise. Reg-

ular and gentle scalp massage, brushing, and intermittent tugging at the hair to lift the scalp are "measures for good scalp hygiene."

However, once ordinary baldness gets under way, "it is progressive and permanent and there is no known way of preventing or retarding its progress," Mrs. Conley said. The tendency toward baldness is hereditary but will appear only where there is a normal amount of male hormone.

Scientists are mostly optimistic about an eventual solution to the problem of baldness, except for one factor.

"In the course of evolution there has been a marked reduction in the amount of hair covering the human body," she said. "The loss of scalp hair may be part of an evolutionary trend. If this is true, future centuries will bring not a cure but the appearance of more and more bald men."

HOME REMEDY OVERTREATMENT CAUSES SKIN DISEASE

Dermatitis from overtreatment with home remedies is one of the leading common skin diseases in this country.

The American Medical Association's Council on Pharmacy and Chemistry has issued a report on the "appalling" incidence of the disease in the *Journal of the A.M.A.* The report was written by Dr. L. Edward Gaul, Evansville, Indiana, dermatologist.

"The public has virtually no knowledge of infection or its prevention, yet persons treat their skin with antiseptics, germicides, disinfectants, and various home concoctions," the report said. "The cause of overtreatment is evident; skin disorders are being treated instead of diagnosed."

The report said common cases of overtreatment skin disease result from applying store or home remedies to minor injuries such as cuts, chemical irritations, infections, sunburn, and athlete's foot. Among the preparations used which have resulted in "overtreatment skin disease" are the organomercurials (such as Merthiolate and Mercurochrome); the sulfonamides;

local anesthetics (such as benzocaine, often found in athlete's foot and poison ivy remedies); antihistamines (advertised for relief of itching, sunburn, and poison ivy), and the antibiotics, especially penicillin.

One of the factors making the problem urgent is the large number of chemicals used for skin remedies, and the opportunities for contact with them. They are stored in many medicine chests. Seventeen of 106 remedies for athlete's foot, 5 out of 114 preparations for poison ivy, and some eye and ear remedies contain mercurials. Antiseptics and local anesthetics are available over the counter in many preparations.

"Persons store them indefinitely; they loan them to friends; and they feel they are the answer to all skin trouble," the report said. "The only practical way to free the human skin from overtreatment sensitization is by a program of public instruction."

The report warned the public "to beware of all semiprofessional advice and ideas," and to use only skin preparations ordered by their physician, and nothing else. Remedies should be destroyed when a cure is effected, and not given to anyone else. Among the skin conditions which call for a doctor's attention are:

Puncture wounds from nails, glass, steel wool, thorns, light bulbs, and similar materials; contaminated cuts and scratches; persistent bleeding of all injuries; oozing of bleeding any time during healing or the beginning of irritation; chemical burns, sunburn not relieved by milk of magnesia or calamine lotion without phenol; tick or spider bites; all animal bites, and especially human bites; and itching, burning, redness, swelling, suspected infection, or fungus infections.

Little cuts, scratches, and burns should be bandaged with sterile gauze, with bandages changed frequently, and kept dry. Soap, household cleaning agents, wax, and cosmetics should be kept off. An ice cube or cold cloth pressed on the injury will relieve pain.

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The Health Bulletin

Published by THE NORTH CAROLINA STATE BOARD OF HEALTH

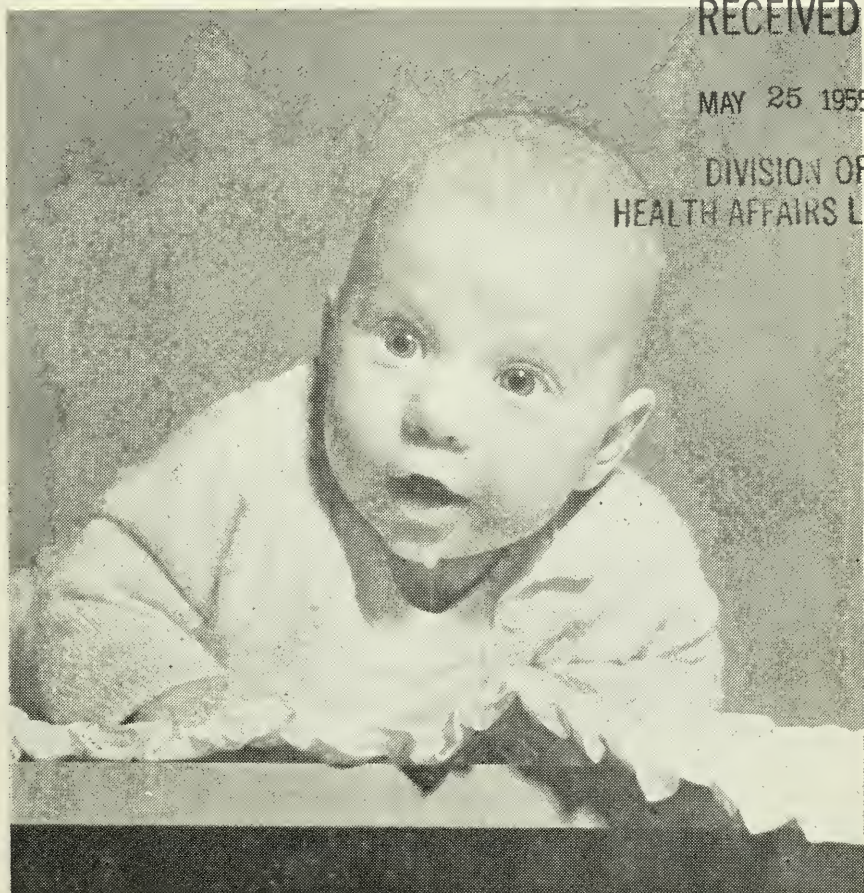
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FREE HEALTH LITERATURE

The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

Diphtheria	Measles	Residential Sewage
Flies	Scarlet Fever	Disposal Plants
Hookworm Disease	Teeth	Sanitary Privies
Infantile Paralysis	Typhoid Fever	Water Supplies
Influenza	Typhus Fever	Whooping Cough
Malaria	Venereal Diseases	

SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, N. C.

Prenatal Care	Instructions for North Carolina
Prenatal Letters (series of nine monthly letters)	Five and Six Months
The Expectant Mother	Seven and Eight Months
Infant Care	Nine Months to One Year
The Prevention of Infantile Diarrhea	One to Two Years
Breast Feeding	Two to Six Years
Table of Heights and Weights	Midwives
Baby's Daily Schedule	Your Child From One to Six
First Four Months	Your Child From Six to Twelve
	Guiding the Adolescent

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THE Health Bulletin

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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

MEDICINE'S GREATEST CHALLENGE— AN EFFECTIVE SAFETY VACCINE FOR CHILDREN

CHARLES M. CAMERON JR., M.D., M.P.H.

Chief, Accident Prevention and Communicable Disease Sections

Division of Epidemiology

North Carolina State Board of Health

Public interest in the positive approach to good health through the prevention of sickness prior to the onset of the actual disease has been heightened by the recent announcement of a partially effective method for the control of poliomyelitis.

Imagination has been captured by the idea of a "miracle vaccine" which, once injected, may ward off forever the threat to children arising from bacterial and virus diseases. Despite the limitations of the present poliomyelitis vaccine, all are encouraged that medical science has taken the initial steps in the development of an immunizing agent offering protection against poliomyelitis.

To those with perspective as to the entire gamut of childhood health problems, however, the greatest need for effective control methods remains in the area of childhood accidents, since it is these needless mishaps which continue to stand unchallenged as the major detriment to health and happiness of children in the United States in 1955. The hope of those concerned with this problem is for a "wonder drug" or "magic vaccine" which will render impotent the ranking killer and crippler of children.

Latest official statistics released by the National Office of Vital Statistics for the year 1952 show that 10 per cent of the 144,715 deaths in children under fifteen years of age were caused by accidents and that 15.5 per cent of America's 96,000 accident fatalities occurred among children under fifteen.

(1)

In comparison with all other conditions, accidents rank as the leading cause of death for persons from one through thirty-four years of age and in the age groups under ten years of age the number of accident fatalities is larger than the combined total of the next five leading causes of death. Official records show that, in comparison with the total deaths occurring at each age, accidental deaths increase in relative importance through the age groups of childhood and reach a peak for the age group fifteen to twenty-four years, when this cause accounts for nearly half of all deaths.

In 1952 for every child under fifteen years of age killed by polio, ten lost their lives in accidents; for every child killed by whooping cough, fifty lost their lives in accidents; for every child killed by diphtheria, 100 lost their lives in accidents; and for every child killed

by typhoid, over 1,400 lost their lives in accidents. (2)

In comparing deaths from accidents and poliomyelitis, the argument has been raised that the greatest threat of poliomyelitis lies in its crippling effects, which invalidates such comparative reasoning. A special report from the Children's Bureau showing the diagnoses of children served by the Crippled Children's Program in 1952 reveals that about 30,000 children with a primary diagnosis of acute poliomyelitis or with handicapping conditions resulting from the disease received physician's services under crippled children's programs. (3)

During a corresponding period about 13,000 children were served in the crippled children's program because of a primary diagnosis of injuries due to accidents. Thus it is shown that, while the number of children crippled by poliomyelitis is about double the number crippled by accidents, the fact that accidents in addition claim ten times the number of lives as does poliomyelitis makes accident prevention among children worthy of prime consideration by all those who profess concern for the welfare of the citizens of tomorrow.

North Carolina's experience during 1952 was similar to that observed on the national scene. In that year poliomyelitis cost the lives of sixteen children under fifteen years of age, while accidents claimed the lives of 518. (4) A total of 1,463 children received crippled children's assistance for defects resulting from poliomyelitis and during the corresponding period 634 children sought aid for the correction of handicaps resulting from accidents.

It has been estimated that each individual during an average lifetime contributes at least \$50,000 to the general economy of the State in terms of wages earned, productive labor and services and goods purchased. If one assumes that the death of a child removes from the general economy an amount equal to the average lifetime contribution of one citizen, then the loss to North Carolina from childhood

accidents amounts to over 26 million dollars each year. Applying the same principle, the loss from poliomyelitis amounts to slightly over one half million.

Although the handicap resulting from both accidents and disease will vary with each individual, all must agree that the earning capacity of the person will be materially limited because of the condition. On the assumption that the lifetime contribution to the economy of the State will be cut in half by handicaps resulting from either poliomyelitis or accidents, one may estimate that the loss for the State from the crippling effects of poliomyelitis each year amounts to about 35 million dollars and the loss from accidents totals about 17 million dollars.

However, when one combines the loss due to both deaths and crippling from each condition, it is apparent that accidents each year cost the State an estimated 43 million dollars, as compared with an estimated loss due to poliomyelitis of 35 million dollars.

None would suggest that a monetary value can be placed on the personal suffering and family grief resulting from either condition; however, on the basis of economics alone, there seems ample justification for assigning higher priority to the development of forceful accident control procedures than to the development of a control method for poliomyelitis. That this concept is foreign to the philosophy of many is evidenced in the pennies and dimes spent for accident control in a year when expenditures for poliomyelitis will amount to millions of dollars.

The interest which official and volunteer health agencies have developed in accident control holds the greatest promise for the development of meaningful safety activities. This is particularly true in those instances where a sound community diagnosis has been made to determine the nature of the local accident problem prior to launching programs in suspected accident areas or against any problem with great emotional appeal. Community

diagnosis must be based on the tried and true techniques of community examination, embracing not only the science of epidemiology in its broadest sense, but also an appraisal of community resources which may be mobilized to meet the health needs of the population.

There remains a great necessity, however, for a greater appreciation of the total accident problem of the geographical unit, be it the nation, a state, county or community. Few indeed are the safety workers in any of the specialized fields of accident prevention who can cite the relative magnitude of the accident problem on the highway, in the home, on the farm, in industry and in recreational areas or in any of the somewhat compartmentalized approaches which safety activities have assumed.

An example of the need for community diagnosis is evident in the concentration on motor vehicle safety activities to the exclusion of concern regarding other types of accidents which has been manifest in North Carolina in the past two years. There is no disagreement that motor vehicle accident control is important and worthy of every effort which has been expended to reduce street and highway accidents, but all should realize that the prevention of every motor vehicle accident involving a child would reduce the total accident experience of those under fifteen years of age by less than one-third.

Table I shows a classification of fatal accidents in children by age group, which illustrates the number of transportation and non-transportation accident deaths recorded at each age. A total of 342 deaths, or about 66 per cent, were caused by non-transportation accidents in the home, on the farm, in recreation areas and in other public places. Transportation accidents are comprised of motor vehicle, train, plane and related types of accidents, of which over 90 per cent are related to the motor vehicle and account for only 34 per cent of accident deaths among children.

The total accident deaths for all persons in North Carolina in 1952 was 2,550, of which 1,173 were classed as transport accident deaths and 1,387 as non-transport accident deaths. It is significant to note that only 12 per cent of all transport accidents involved children under fifteen years of age, while over 30 per cent of the non-transport accidents claimed children as their victims. The significance in these figures is clear: (1) that motor vehicle safety activities will only partially reduce the accident loss among children; and (2) that the greatest accident hazards for North Carolina's children are in the homes, on the farms and in parks and playgrounds and are not concentrated on the highways, as many suppose.

Additional epidemiological study of the State's accident experience has revealed that consistently the highest accident fatality rates are recorded among the nonwhite male children, followed by white male children in the next most frequently observed position. Nonwhite females amass the third highest accident rates, with the white females recording the lowest rates in the State. (5) From these observations one may conclude that accident control activities should be concentrated on the nonwhite elements of the population, which are predominantly Negro in this State. In addition, safety programs among all residents must be designed to reach the male elements of the population.

This step-by-step analysis must be carried into each county and community in the State so that health and safety officials may plan programs aimed specifically at the major types of accidents in each area. For example, it has been noted that the frequency of firearm accident deaths among children is highest in the rural counties of North Carolina, while the highest incidence of accidental poisonings has been recorded in the more thickly populated counties. Similarly, the prevention of accidental drownings is of more importance to certain coastal counties than to those in the

western areas of North Carolina.

In addition to the need for the drafting of community-specific safety activities, there continue to be large voids in the knowledge of all concerning the background and etiology of accidents. To a large measure, safety specialists are limited to statistics concerning fatal accidents, and the reverse side of the coin, non-fatal accidents, is virtually unexplored. Pilot studies have demonstrated that the most frequently observed fatal accidents are not the most common accidents resulting in injury without death, and since it is estimated that less than one per cent of accidents result in death, this facet of the accident problem cannot be ignored.

Much has been said about accident proneness, and certain studies seem to indicate that children with certain personality patterns may be most frequently involved in accidents, but the exact influence of physical, mental and emotional factors on the accident threshold of an individual is worthy of considerable additional emphasis.

The activities and methods of inspiring parents and children to seek safer ways of living must receive extra study in the same manner that scientists are obligated to test the relative efficiency of any disease control procedure. There seems to have been made a basic assumption that the safety campaign is the best way of motivating individuals to safer living in the face of experience in other fields, which has shown that activities on such a superficial intellectual level may be uneconomical and inefficient. How individuals can best be made aware of the implications of safe homes, safe appliances and safe habits remains a paramount question facing all safety specialists.

It has been said that individuals living in an era when history is being made either over-emphasize or under-emphasize the true significance of events occurring about them. This is particularly apt in the second half of the twentieth century, when almost daily new scientific frontiers are being

crossed and the tools for public information are developed to an extent never before reached. There has never been a greater need for the quiet scientific appraisal of health problems and approaches to these problems, completely devoid of emotionalism.

With the realization of the areas wherein the major health problems are centered will come an atmosphere favorable to the establishment of laboratory-centered and community-centered research which can give birth to the "safety vaccine" so badly needed to halt the needless deaths, injuries and disabilities experienced by the children of the nation.

Table I

Reported Accident Deaths Among
Children Under Fifteen Years of
Age By Major Type
North Carolina, 1952

Age Group	Transport Accident Deaths	Non-Transport Accident Deaths
Under 1	8	164
1 - 4 Years	50	91
5 - 9 Years	66	31
10 - 14 Years	52	56
Total	176	342

Data from Public Health Statistics
Section

North Carolina State Board of Health

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MOSQUITOES AND THEIR CONTROL

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There are fifty or more species of these annoying, disease-bearing insects in North Carolina. People who study mosquitoes find that when they are examined under a magnifying glass some species differ from others as much in size, shape and color as do the many kinds of birds. Variations in their habits are just as great. Some species seldom travel more than a few hundred feet from their breeding places, while others fly many miles. A few mosquitoes bite only cold-blooded animals, such as frogs and snakes, but most species feed on warm-blooded animals, including man. Their selections of breeding places differ just as widely. There are species that breed only in salt marshes; others prefer large bodies of fresh water. Many breed in woodland pools and seldom venture into open country. Some highly domesticated species that live around human habitation breed in artificial containers, such as tin cans, discarded automobile tires, rain barrels, flower vases and roof gutters that do not drain properly. They all have one thing in common. *Mosquitoes breed only in water*, regardless of their species. There is a mistaken belief that they breed in grass, hedges, weeds, chinaberry trees and other types of vegetation, because they are often found resting in such places during the daytime, because of the protection offered against the sun, wind and enemies.

HOW MOSQUITOES AFFECT HUMANS

Many authorities regard mosquitoes as one of mankind's worst scourges. They transmit organisms that cause human diseases, are sources of irritation, annoyance and general discomfort and in many instances adversely affect our economic welfare.

Malaria

The only means in nature whereby malaria can be transmitted from one person to another is by the bite of a mosquito of the *Anopheles* genus. On a worldwide basis, it has been proven that numerous species belonging to this genus carry the disease. While there are several species of *Anopheles* mosquitoes in North Carolina, it is believed that only one, the *Anopheles quadrimaculatus*, transmits malaria in this State.

Extensive mosquito control operations conducted by local health departments, in co-operation with the North Carolina State Board of Health, during recent years have resulted in the near-eradication of malaria in the State. As late as 1936, 150 deaths from the disease were reported. It is now very difficult to find a positive case. In spite of this gratifying reduction, it would not be safe to discontinue malaria control activities, as it is possible that the disease could return in epidemic form. In many parts of

the world, malaria is still a public health problem of the greatest magnitude. Present-day travel facilities compel us to be continuously on the alert to prevent its becoming re-established here.

Yellow Fever

Historically, this highly fatal disease is of primary importance in North Carolina, and the other Southern states. During the last century epidemics occurred in which thousands of people died. At present, yellow fever is confined to parts of South America, Central America and Africa. In 1953 two Brazilian states had 92 verified cases, of which 88 died. Mosquitoes of the *Aedes aegypti* species, which transmit the disease, are distributed throughout North Carolina. The re-introduction of yellow fever in certain areas where these mosquitoes occur in abundance would probably result in many human deaths before effective control operations could be inaugurated. The United States Public Health Service, by disinfecting airplanes which come from certain tropical areas and examining the passengers before they are allowed to land, along with other precautions, has been very successful in keeping yellow fever out of this country.

Encephalitis

Several types of encephalitis are transmitted by mosquitoes and are of increasing public health importance, due to their seriousness and the fact that they are spreading to many areas in which they have not formerly occurred. Three strains have occurred in parts of the United States, including the South. In 1952, during an outbreak in California, 753 cases of the disease were reported, with 51 deaths. The Japanese B strain, an extremely virulent form, has recently been shown to be spreading eastward from Japan. With conditions favorable to its spread, this type could become a public health problem of the highest magnitude in North Carolina. With rapid

means of transportation and the increasing inclination of people to travel, it becomes increasingly difficult to keep exotic diseases out of the United States.

Dengue and Filariasis

These two mosquito-borne diseases are of considerable importance in tropical and sub-tropical regions, but their transmission in North Carolina has not been recorded.

Animal Diseases Transmitted by Mosquitoes

Equine encephalomyelitis, a disease highly fatal to horses, fowl pox, a disease common to poultry, and several other animal diseases are transmitted by mosquitoes in North Carolina. Statistics show that from 30 to 90 per cent of the horses infected by the former disease died. Several outbreaks of this malady have occurred in North Carolina.

Other Ways in Which Mosquitoes Affect Man

Aside from their role as transmitters of diseases, mosquitoes have very decided adverse effects on the well-being of mankind. The presence of these insects in abundance renders life miserable and causes drastic reductions in property values. Mosquitoes influence the mental as well as the physical well-being of people. Some individuals can tolerate large numbers of mosquito bites without obvious ill effects, while others manifest reactions based on varying degrees of tolerance. Some suffer extreme annoyance from only a few bites. With many people, in addition to swelling and itching, mosquito bites result in the formation of pustules, which persist for long periods, bringing on nervousness, irritation and loss of sleep.

LIFE CYCLE AND HABITS

The Egg

All mosquitoes go through a complete metamorphosis. After mating, which sometimes takes place while flying, the

fertilized female must have a blood meal before her eggs will hatch. The eggs are laid on water or in places likely to hold water. If not laid directly upon the water, they will not hatch until the place is flooded. Eggs of *Culex* mosquitoes float in rafts, while those of other species occur separately. Sometimes hatching takes place in one day, but occasionally several weeks are required, the time being dependent upon several factors, such as the species of mosquito, temperature and presence of water.

The Larvae

The larvae, commonly called "wiggletails," which are hatched from the eggs, are so small at first that they can hardly be seen without the aid of a magnifying glass. They feed on organic matter and organisms in the water and grow rapidly. Before developing into pupae they molt four times.

Practically all species remain just below the water surface and get air through breathing tubes which penetrate the surface. *Anopheles* larvae lie under and parallel to the water surface. When disturbed, they will usually move rapidly and appear to be gliding on top of the water. Mosquitoes of this genus have rudimentary breathing tubes. Most species of mosquitoes, other than those belonging to the *Anopheles* genus, hang head downward from the water surface at an angle and appear to be suspended by their breathing tubes which penetrate the water surface. When disturbed, they usually dive with a wiggling action.

Larvae of the *Mansonia perturbans* remain below the water surface at all times and obtain oxygen from vegetation to which they attach.

The duration of the larval stage is usually only a few days but it sometimes lasts several months, the period being determined by the species of mosquito, temperature and other factors.

The Pupae

While in the pupal stage, mosquitoes

are encased in a shell and cannot eat but retain their motility. They appear to be almost all head with a small tail attached. They become very active when disturbed, darting around or making fast dives, returning with equal rapidity or slowly floating to the surface. Sometimes they bob up and down. This stage seldom lasts over a few days; then the adult mosquito emerges from the pupal case.

The developmental cycle of the mosquito from egg to adult seldom takes less than seven days and usually requires around ten days, although under unfavorable conditions, resulting from low temperatures or shortage of food, several months may be required.

The Adult Mosquito

This is the only stage in the life of mosquitoes that is not spent in water.

After emerging from the pupal case, adult mosquitoes rest for several minutes, in order that their soft, damp bodies may become dry and firm. The males hover around the breeding places and usually mate with the females soon after they emerge. With some species this takes place before the female takes flight. Other species, including the *Anopheles quadrimaculatus*, our malaria mosquito, never mate except when flying. One mating makes the female fertile for life.

The male mosquito does not bite. In fact it has no mouth parts capable of piercing the skin. Food is obtained from sap of trees, nectar from flowers and fruit juices. As these necessities can usually be found near the breeding places, males seldom fly great distances.

The female mosquito must have a blood meal before her eggs will hatch. For this reason the distance she flies is to a large extent influenced by the availability of humans or animals upon which she can feed. Flight distances are also determined by the species of mosquito, weather conditions and other factors.

There are many species of non-biting midges that look like adult mosquitoes

and are frequently mistaken for them. These midges, like male mosquitoes, have antennae that are heavily plumed on each side of the mouth and do not have biting mouth parts.

In nature it is estimated that adult mosquitoes seldom live over 30 days. Under favorable conditions that can be maintained in the laboratory, they can be kept alive several months. It is also true that females of some species live through the winter in the adult stage. Other species spend the winter as eggs or larvae.

When feeding or resting, mosquitoes of the *Anopheles* genus usually hold their bodies on an angle of 45 degrees or greater with the surface. Other species rest in a humped-up position almost parallel to the surface.

IMPORTANT SPECIES OF MOSQUITOES IN NORTH CAROLINA

As there are over 50 known species of mosquitoes in North Carolina and about 1500 in the world, it is not possible in a writing of this kind to discuss each species, nor is it practical to present detailed information regarding any of them. It is suggested that those who desire more complete knowledge consult a textbook on Medical Entomology, or one of the bulletins prepared by the U. S. Government. "Mosquitoes of the Southeastern States," Miscellaneous Publication No. 336, a good bulletin on the subject, can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 25 cents.

Condensed information regarding some species that are important in North Carolina is given below:

Anopheles quadrimaculatus, the mosquito that transmits malaria in North Carolina, is rather dark in color and has four spots on each wing. It breeds principally in permanent bodies of fresh water that contain aquatic vegetation and floating trash. Ponds, stagnant ditches and swamps in which the acidity of the water is not high are ideal breeding places. It seldom lays its eggs in artificial containers.

The flight range of this mosquito is usually not over one mile. As these mosquitoes seldom fly, except at night, and spend the daytime resting in hollow trees, stables, homes, or other protected places, there is no danger of becoming infected with malaria by visiting places where they occur in large numbers during the daytime.

More information regarding this mosquito and the diseases it carries can be found in "Your Pond—A Public Health Responsibility," Special Bulletin No. 466 of the North Carolina State Board of Health.

Aedes aegypti, the mosquito that transmits yellow fever, is small and almost black in color, with a light design in the shape of a lyre on its back. It breeds in small water containers, such as discarded automobile tires, tin cans, bottles, flower vases, roof gutters and flush tanks in empty houses. Clean water is preferred, but they will breed in water that is highly polluted.

These mosquitoes rarely fly more than a few hundred yards from their breeding places. They seldom bite, except during the daytime, and are most active early in the morning or late in the afternoon. These are very annoying pest mosquitoes that usually bite around the ankles or wrists.

Mosquitoes of this species are found in abundance in North Carolina, but, fortunately, they must bite a person with yellow fever before they can transmit the disease.

Culex quinquefasciatus, an average-size mosquito, is grayish brown in color, with white bands around the abdomen. Like the *Aedes aegypti*, it usually breeds and remains in the vicinity of human dwellings. In most urban areas it is one of the most abundant night-biting mosquitoes and is extremely annoying. This species breeds in rain barrels, catch basins, the effluent from sewage treatment plants, polluted ground pools and ditches, street gutters, garbage dumps and other places.

This mosquito transmits encephalitis and filariasis.

Aedes sollicitans, our most troublesome species of salt marsh mosquitoes, are fairly large in size and golden brown in color, with white rings around their legs. Because of their abundance, long flight range and fierce biting habits, these mosquitoes often make life miserable for residents and summer visitors in our coastal areas. They will fly as much as 40 miles and occasionally greater distances from their breeding places and attack with readiness day or night, and they are so plentiful at times that it is hard to keep them brushed off the face and other parts of the body.

These mosquitoes breed in brackish water. The eggs are usually laid on the mud in pot holes and other depressions in salt marshes that are not flooded by daily tides. These eggs may dry out entirely and still retain their viability. After rains water collects in these places and causes the eggs to hatch. Within a short time, usually less than a week, the mosquitoes are grown. By this process large numbers of eggs that have collected over long periods of time hatch almost simultaneously, and within a few days an enormous brood of mosquitoes emerges.

During the daytime mosquitoes of this species usually rest in the grass and low brushes. When disturbed, they attack viciously. Just before dark they fly off in large swarms looking for blood meals.

Aedes taeniorhynchus, another annoying salt marsh mosquito that occurs on the North Carolina coast, is medium in size, nearly black, with white bands around its abdomen and legs. It is less inclined to bite during the daylight than the *Aedes sollicitans*. Unlike the *Aedes sollicitans*, these mosquitoes will breed in water varying in salt content from sea water to that which is completely fresh. Mosquitoes of this species will fly several miles.

MOSQUITO CONTROL

From the foregoing it will be seen that it is necessary to give consideration to the breeding, flying and feed-

ing habits of the mosquito species involved before planning an effective and efficient control program. As three of the four stages in the life of a mosquito are spent entirely in water, it is in general advisable to apply control operations to the breeding places. To be completely successful, it is often necessary to employ measures directed at them in all stages from egg to adult.

Responsibility for the control of mosquitoes is shared by both individuals and public officials. The property owner can help prevent mosquito breeding in the immediate vicinity by applying simple control measures, but there is very little that he can do toward control of many far-flying, fierce-biting mosquitoes. These are problems for the community as a whole.

What The Home Owner Can Do

Shown below are some of the things you can do on your own premises to prevent the breeding of mosquitoes and to protect yourself against those that fly in from the outside:

1. Drain all standing water, if it is possible to do so.
2. Fill depressions in the ground that hold water.
3. Apply kerosene or No. 2 fuel oil to collections of ground water that cannot be eliminated by drainage, such as stagnant ditches, clay pits, ponded areas, privy pits and hog wallows.
4. Build and maintain farm ponds in accordance with the directions in *Your Pond—A Public Health Responsibility*, Special Bulletin No. 466. This bulletin can be obtained free of charge from your local health department.
5. Eliminate unnecessary receptacles that hold rain water, such as tin cans, old rubber tires, discarded water buckets, fruit jars and bottles.
6. Keep roof gutters free of trash, such as tree leaves, and maintain them in such a manner that they do not sag and hold water.

7. Drain watering troughs, bird baths, flower vases and other unprotected water containers once a week. Allow them to dry thoroughly before refilling.
8. Keep 16-mesh wire screens over barrels and other containers used to save rain water.
9. Mosquito-proof the home by putting snug-fitting screens of 16-mesh wire over the outer openings of all doors, windows and exhaust fans. Sub-standard homes with holes in the floors, roofs or outside walls require additional mosquito-proofing by patching over such places. Porches and chimneys with open fireplaces should also be screened in areas where mosquitoes are abundant.
10. Apply residual sprays of DDT or other approved chemicals to out-buildings, porches and screens. In homes that are not mosquito-proofed the interiors should also be treated.
11. Use space sprays both inside and outside the home where other measures are not effective. Material used for both residual spraying and space spraying should be purchased from a reliable source. It is important to read the label carefully and follow the directions exactly. Do not use the material for any purpose other than those recommended and be sure to heed all safety precautions given. *Insecticides are poison.* Keep them stored in places where they cannot be reached by children or irresponsible persons.
12. Repellants, such as commercial preparations that contain oil of citronella, dimethyl phtalate, indalone, or Rutgers 612, are effective for several hours as protection against mosquitoes and some other insects. They should be applied according to directions on the label. Care should be taken to avoid getting these materials in the eyes.
13. Make periodic inspections of the premises to ascertain that the

screens are in good repair and that no places exist that breed mosquitoes.

What Communities Should Do

The control of most species of mosquitoes is a community problem, as it is not practical for individuals to provide the necessary personnel and equipment. Many species have such long flight ranges that it would be impossible for a person to determine when to apply control in order to do away with them, even if he had the necessary facilities. Shown below are some of the measures that should be applied by the town, sanitary district or other community organization:

1. *Drainage and filling.* Eliminate mosquito-breeding areas by drainage or filling. As far as is feasible, the entire drainage system should be planned, constructed and maintained in such a manner as to prevent the collection of standing water.

Canals and ditches should be cut to true, even grades, with the bottoms narrow enough to be covered with water during periods of normal flow. Slope the sides enough to prevent their caving. Have the alignment straight, when it is possible to do so, and, when changes in direction are necessary, avoid sharp angles by putting in curves as flat as the ground and other topographical features will permit. Install drainage structures under roads and streets on grades that conform with those in the ditches. When sufficient funds are available, place concrete linings in the bottoms of ditches or put the system underground in pipes and culverts.

Install sewers, water mains or other potential obstructions that cross the channels at elevations that will not interfere with the flow.

Keep ditches and streams as free as possible of drift, floatage and other debris.

Cut vegetation that interferes with larvicidal operations or obstructs the flow as often as the rate of growth requires. Other vegetation should be permitted to remain, as the shade

provided inhibits the growth of weeds and grass.

Planning and construction of the drainage system should be performed under the supervision of an engineer.

2. *Larviciding.* To destroy mosquito larvae and pupae in their breeding places, petroleum derivatives, such as No. 2 fuel oil, and DDT or other chemicals are applied to the water surface. Approximately 20 gallons of No. 2 fuel oil is required per acre of water surface when this material is used alone, but when 100% technical DDT is dissolved in the oil, at the rate of 6 pounds of DDT to 100 gallons of oil, one to two gallons is enough for an acre. In either case, the larvicide should be applied at ten-day intervals.

In land-locked fresh water ponds where fish are not present, or when no consideration is given their mortality, effective control can be obtained for from three to six months by applying DDT at the rate of three pounds per acre, or Dieldrin at the rate of one pound per acre. This method is destructive of fish and other forms of aquatic life and should not be used except in unusual circumstances.

Your local health department should be requested to assist in the selection of larvicides and the equipment for their dispersal.

3. *Outdoor Space Spraying.* Temporary relief from mosquitoes can be obtained by the application of space sprays in the form of fogs or mists. This method of mosquito control merely kills or drives off the insects present at the time it is applied but gives no significant lasting effect. With the best space spray machines, using effective insecticides and operated in the correct manner, kills are seldom obtained at distances greater than 200 feet. The fog which travels much greater distances does not kill mosquitoes but is of some value in driving them out of the area. Several machines designed for the disposal of insecticides, as mists or fogs, are commercially available.

DDT and other insecticides are used in space spraying. The local health department should be asked to assist in selecting the insecticide and in determining the formulation to use.

Caution: All insecticides are poisonous and should be so regarded at all times. The State law requires that those sold commercially be registered with the North Carolina Department of Agriculture. No insecticides should be used other than those that are properly registered and labeled with adequate directions concerning their use and precautions for safety.

NOTES AND COMMENTS

BY THE EDITOR

OUR FRONT COVER—Charles M. Cameron, III, is the son of Dr. and Mrs. Charles M. Cameron of Raleigh, North Carolina. Dr. Cameron is Chief of the Communicable Disease Section of the Division of Epidemiology, North Carolina State Board of Health, and is also Chief of our Accident Prevention Section.

INFANT AND MATERNAL MORTALITY—The May issue of The Health Bulletin traditionally publishes statistical data concerning births, infant deaths and maternal deaths for the

States of the Nation and for the counties of the State. On page 15 you will find information for each of the States of the Nation for the year, 1952. On Page 16 are provisional figures for each county in the State, for the year, 1954.

For infant deaths, the year, 1952, was a bad year for North Carolina. Not only did our infant mortality increase, while the rate for the Nation remained stationary, but several States which formerly had higher rates than North Carolina made such substantial

improvement that our relative position among the states, is even more embarrassing than it has been in previous years. In 1952—only five States in the Nation had higher rates than North Carolina; in 1949—9 other states were worse than North Carolina; in 1950—12 others; and in 1951—13 states had higher infant mortality rates than North Carolina. In 1952 only Alabama, Arizona, Mississippi, New Mexico and South Carolina had more infant deaths in proportion to the number of births than did our own State. Even New Mexico, which has had the highest rate in the Nation for years, and still does, reduced their rate from 54.4 in 1951 to 47.5 in 1952. North Carolina's Infant Mortality rate of 32.7 in 1952 is so painful to all public health workers that we are anxious to change our viewpoint to 1954 when we did much better. Whether or not our rank in the Nation will be improved—only time can tell for National figures always trail our current provisional rates by two years.

Maternal Mortality rates, which are computed on the basis of 10,000 live births, show North Carolina in just about as bad a light for 1952 as our Infant Mortality rates. North Carolina with a rate of 10.2 had only 6 other states with a worse record: Alabama, Georgia, Mississippi, New Mexico, South Carolina, and Tennessee. Here we actually improved our Maternal Mortality rate over the year 1951, yet we actually lost ground on a comparative basis for while our rate was exceeded only by 6 in 1952—in 1951 there were 7 with higher rates than our own.

The Birth rate of the Nation in 1952 was 24.7. North Carolina's rate was 26.7. Fourteen states had a higher birth rate than North Carolina.

North Carolina's record looks much better in 1954 according to our provisional data. Our Infant Mortality rate is 30.0. Although our official figures vary slightly from the provisional ones, our official rate will not vary materially. Only one County,

Columbus, had a rate higher than 50. Fourteen counties had higher rates than 40, 30 higher than 35. The most encouraging fact in our 1954 Infant Mortality is the fact that many of our counties with traditionally high rates have shown marked improvement. We are particularly proud of the progress which has been made in Onslow County, which in 1952 and again in 1953 had rates in excess of 70, but which in 1954 came up with a rate of 27.1;—thus a county which has had the highest rate in the State now has a rate less than the average for the State. Other counties making definite progress are Craven, Edgecombe, Granville, Halifax, Jackson, Northampton, and Pender. Certainly we have demonstrated that we can do something about our Infant Mortality problem when we devote intelligent effort in determining its causes and make a conscientious effort to reduce its prevalence. We have many counties in North Carolina with rates lower than that of the Nation.

Our Maternal Mortality rate in 1954 also showed marked improvement, being 7.6 per 10,000 live births in 1954 as compared with 10.2 in 1952. Although our 1954 rate is greater than the Nation's in 1952, 6.8, our comparative position with other states should not be too bad.

We are making progress in North Carolina both in the protection of our mothers and children born to them. This progress is Nation-wide. Unless we accelerate our progress, we will have a tough struggle to improve our relative position among the states.

We invite our readers to look over these statistical tables. It will be particularly helpful if you will study the records for your own county. If they are good, compliment your Health Officer. If your infant and Maternal mortality rates are consistently bad and are showing little, if any, signs of improvement, consult your Health Officer. Maybe he has an explanation. If he doesn't maybe your interest will stimulate him.

REGISTERED LIVE BIRTHS, INFANT DEATHS, AND

MATERNAL DEATHS WITH RATES:

UNITED STATES AND EACH STATE, 1952

(By place of residence. Births based on a 50 per cent sample. Infant mortality rates per 1,000 live births. Maternal mortality rates per 10,000 live births)

Area	Live Births		Infant Deaths ¹		Maternal Deaths ²	
	Number	Rate	Number	Rate	Number	Rate
United States	3,846,986	24.7	109,413	28.4	2,610	6.8
Alabama.....	83,140	26.9	3,073	37.0	137	16.5
Arizona.....	24,760	28.5	1,089	44.0	19	7.7
Arkansas.....	43,718	23.7	1,235	28.2	44	10.1
California.....	281,692	24.0	6,909	24.5	143	5.1
Colorado.....	37,184	26.2	1,198	32.2	29	7.8
Connecticut.....	46,546	21.9	964	20.7	9	1.9
Delaware.....	8,806	25.3	242	27.5	7	7.9
District of Columbia.....	20,512	25.0	669	32.6	12	5.9
Florida.....	74,498	24.0	2,532	34.0	58	7.8
Georgia.....	97,238	27.7	3,177	32.7	123	12.6
Idaho.....	16,836	28.6	422	25.1	11	6.5
Illinois.....	205,526	23.0	5,093	24.8	95	4.6
Indiana.....	104,950	25.1	2,798	26.7	52	5.0
Iowa.....	64,216	24.7	1,575	24.5	22	3.4
Kansas.....	50,006	25.4	1,238	24.8	32	6.4
Kentucky.....	74,086	25.1	2,614	35.3	56	7.6
Louisiana.....	80,624	29.2	2,668	33.1	77	9.6
Maine.....	21,446	24.1	635	29.6	12	5.6
Maryland.....	62,556	24.6	1,706	27.3	39	6.2
Massachusetts.....	105,520	22.2	2,461	23.3	54	5.1
Michigan.....	178,634	26.8	4,719	26.4	83	4.6
Minnesota.....	79,406	26.4	1,729	21.8	29	3.7
Mississippi.....	64,622	30.0	2,621	40.6	121	18.7
Missouri.....	90,384	22.7	2,572	28.5	63	7.0
Montana.....	16,444	27.5	451	27.4	8	4.9
Nebraska.....	33,856	25.2	794	23.5	15	4.4
Nevada.....	4,540	24.5	155	34.1	3	6.6
New Hampshire.....	12,014	22.6	279	23.2	5	4.2
New Jersey.....	110,238	21.7	2,613	23.7	65	5.9
New Mexico.....	24,186	32.9	1,150	47.5	28	11.6
New York.....	326,310	21.6	7,859	24.1	164	5.0
North Carolina.....	111,272	26.7	3,968	35.7	113	10.2
North Dakota.....	17,310	28.7	428	24.7	6	3.5
Ohio.....	207,660	25.2	5,611	27.0	86	4.1
Oklahoma.....	50,322	22.6	1,439	28.6	38	7.6
Oregon.....	39,932	24.9	958	24.0	11	2.8
Pennsylvania.....	239,546	22.7	6,194	25.9	145	6.1
Rhode Island.....	17,098	20.9	390	22.8	8	4.7
South Carolina.....	62,582	28.8	2,564	41.0	98	15.7
South Dakota.....	18,346	27.8	506	27.6	12	6.5
Tennessee.....	82,280	25.3	2,742	33.3	90	10.9
Texas.....	226,418	27.7	7,739	34.2	205	9.1
Utah.....	23,772	32.3	575	24.2	11	4.6
Vermont.....	9,192	25.0	219	23.8	3	3.3
Virginia.....	88,770	25.3	3,147	35.5	72	8.1
Washington.....	61,510	25.0	1,541	25.1	14	2.3
West Virginia.....	49,124	25.1	1,690	34.4	37	7.5
Wisconsin.....	89,242	25.5	2,200	24.7	44	4.9
Wyoming.....	8,116	26.5	262	32.3	2	2.5

¹ Exclusive of fetal deaths (stillbirths)

² Deaths from deliveries and complications of pregnancy, childbirth, and the puerperium.

Source: National Office of Vital Statistics. PHSS: 4-6-55

**RESIDENT LIVE BIRTHS, INFANT DEATHS, AND
MATERNAL DEATHS WITH RATES*:
NORTH CAROLINA AND EACH COUNTY, 1954****

Area	Live Births		Infant Deaths		Maternal Deaths		Area	Live Births		Infant Deaths		Maternal Deaths	
	No.	Rate	No.	Rate	No.	Rate		No.	Rate	No.	Rate	No.	Rate
North Carolina	113,840	3.411	30.0	87	7.6		Johnston	1,548	40	25.8	1	6.5	
Alamance	1,872	37	19.8	—	—		Jones	323	4	12.4	1	31.0	
Alexander	354	10	28.2	—	—		Lee	738	24	32.5	1	13.6	
Alleghany	134	3	22.4	—	—		Lenoir	1,660	62	37.3	1	6.0	
Anson	708	31	43.8	1	14.1		Lincoln	648	15	23.1	—	—	
Ashe	486	18	37.0	—	—		McDowell	663	9	13.6	1	15.1	
Avery	308	5	16.2	—	—		Macon	343	10	29.2	—	—	
Beaufort	970	46	47.4	1	10.3		Madison	362	9	24.9	—	—	
Bertie	792	21	26.5	2	25.3		Martin	809	33	40.8	1	12.4	
Bladen	861	36	41.8	1	11.6		Mecklenburg	6,310	175	27.7	2	3.2	
Brunswick	534	25	46.8	—	—		Mitchell	342	3	8.8	—	—	
Buncombe	2,673	57	21.3	—	—		Montgomery	477	11	23.1	—	—	
Burke	974	24	24.6	1	10.3		Moore	1,007	15	14.9	1	9.9	
Cabarrus	1,508	22	14.6	1	6.6		Nash	1,725	67	38.8	—	—	
Caldwell	1,281	35	27.3	1	7.8		New Hanover	1,842	66	35.8	3	16.3	
Camden	153	4	26.1	—	—		Northampton	800	21	26.3	1	12.5	
Carteret	703	20	28.4	1	14.2		Onslow	2,217	60	27.1	—	—	
Caswell	511	18	35.2	—	—		Orange	898	26	29.0	—	—	
Catawba	1,762	43	24.4	—	—		Pamlico	267	8	30.0	—	—	
Chatham	617	16	25.9	1	16.2		Pasquotank	791	23	29.1	—	—	
Cherokee	368	17	46.2	—	—		Pender	503	18	35.8	1	19.9	
Chowan	371	10	27.0	—	—		Perquimans	277	5	18.1	1	36.1	
Clay	197	—	—	1	93.5		Person	737	27	36.6	2	27.1	
Cleveland	1,733	51	29.4	1	5.8		Pitt	2,048	58	28.3	2	9.8	
Columbus	1,491	78	52.3	1	6.7		Polk	271	12	44.3	—	—	
Craven	2,127	64	30.1	3	14.1		Randolph	1,389	36	25.9	2	14.4	
Cumberland	5,063	143	28.2	6	11.9		Richmond	1,107	35	31.6	—	—	
Currituck	163	6	36.8	—	—		Robeson	3,007	120	39.9	5	16.6	
Dare	126	1	7.9	1	79.4		Rockingham	1,550	35	22.6	2	12.9	
Davidson	1,601	45	28.1	1	6.2		Rowan	1,731	42	24.3	—	—	
Davie	367	13	35.4	—	—		Rutherford	1,053	25	23.7	—	—	
Duplin	1,175	30	25.5	4	34.0		Sampson	1,403	49	34.9	1	7.1	
Durham	2,468	65	26.3	2	8.1		Scotland	788	38	48.2	1	12.7	
Edgecombe	1,714	63	36.8	—	—		Stanly	842	22	26.1	2	23.8	
Forsyth	4,099	120	29.3	2	4.9		Stokes	485	8	16.5	1	20.6	
Franklin	832	30	36.1	4	48.1		Surry	1,142	33	28.9	—	—	
Gaston	3,075	92	29.9	1	3.3		Swain	249	4	16.1	—	—	
Gates	231	8	34.6	—	—		Transylvania	367	10	27.2	—	—	
Graham	172	3	17.4	—	—		Tyrrell	120	5	41.7	—	—	
Granville	818	30	36.7	—	—		Union	1,093	44	40.3	1	9.1	
Greene	533	21	39.4	1	18.8		Vance	929	43	46.3	1	10.8	
Guilford	5,174	139	26.9	2	3.9		Wake	3,656	111	30.4	2	5.5	
Halifax	1,847	62	33.6	2	10.8		Warren	609	21	34.5	—	—	
Harnett	1,241	35	28.2	1	8.1		Washington	445	14	31.5	1	22.5	
Haywood	845	17	20.1	—	—		Watauga	422	13	30.8	—	—	
Henderson	708	14	19.8	—	—		Wayne	1,673	64	38.3	1	6.0	
Hertford	628	20	31.8	1	15.9		Wilkes	1,028	22	21.4	1	9.7	
Hoke	461	19	41.2	—	—		Wilson	1,629	75	46.0	2	12.3	
Hyde	154	5	32.5	—	—		Yadkin	466	14	30.0	—	—	
Iredell	1,430	37	25.9	1	7.0		Yancey	387	9	23.3	—	—	
Jackson	341	9	26.4	—	—								

*Infant deaths per 1,000 live births; Maternal deaths per 10,000 live births.

**Data are provisional and include receipts through January 1955 for 1954 occurrences.

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The Health Bulletin

Published by THE NORTH CAROLINA STATE BOARD OF HEALTH

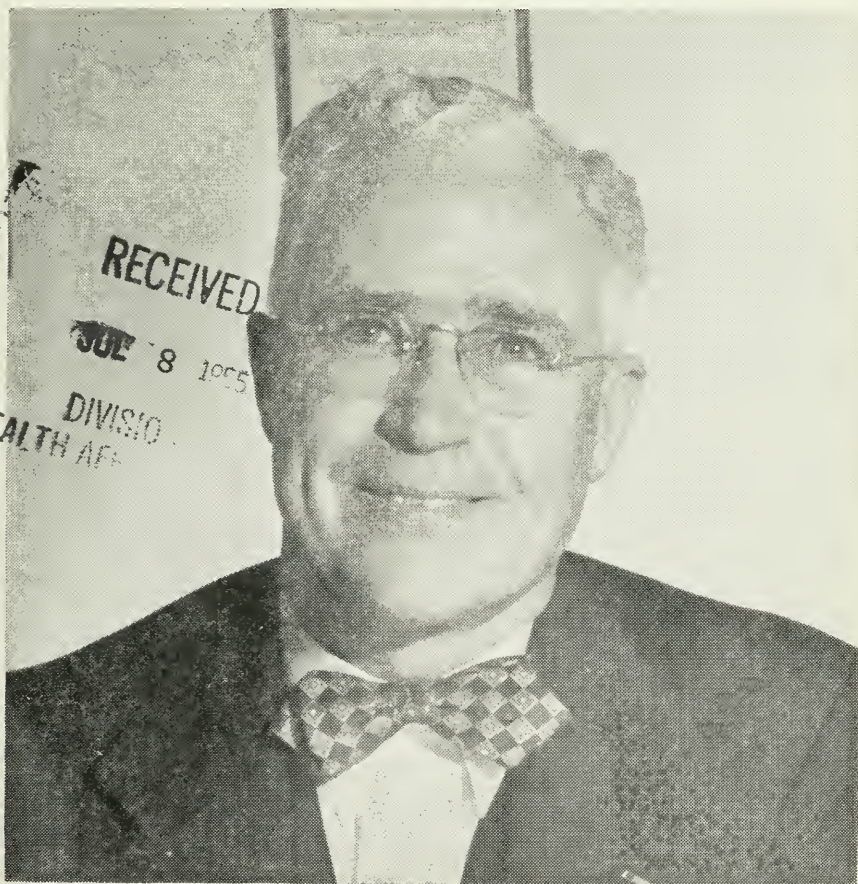
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HEALTH OFFICER REPORTS

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FREE HEALTH LITERATURE

The State Board of Health publishes monthly **THE HEALTH BULLETIN**, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

Diphtheria	Measles	Residential Sewage
Flies	Scarlet Fever	Disposal Plants
Hookworm Disease	Teeth	Sanitary Privies
Infantile Paralysis	Typhoid Fever	Water Supplies
Influenza	Typhus Fever	Whooping Cough
Malaria	Venereal Diseases	

SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, N. C.

Prenatal Care	Instructions for North Carolina
Prenatal Letters (series of nine monthly letters)	Five and Six Months
The Expectant Mother	Seven and Eight Months
Infant Care	Nine Months to One Year
The Prevention of Infantile Diarrhea	One to Two Years
Breast Feeding	Two to Six Years
Table of Heights and Weights	Midwives
Baby's Daily Schedule	Your Child From One to Six
First Four Months	Your Child From Six to Twelve
	Guiding the Adolescent

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Health Bulletin

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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

CHRONIC DISEASES—A JOINT RESPONSIBILITY OF PRIVATE PRACTICE AND PUBLIC HEALTH*

By J. W. R. NORTON, M.D., M.P.H., F.A.C.P.**

Raleigh

In the long span of recorded time on this planet fifty years is as the twinkling of an eye, but medical progress during this period has exceeded that of many prior centuries. For the twenty-eighth year after the establishment of the North Carolina State Board of Health, Dr. Cooper in his chronological summary for 1905 had this to say for a year just before the beginning of intensified joint efforts against communicable diseases:

"General Assembly established State Laboratory of Hygiene; imposed water tax of \$64 on all public water companies; voted \$600 annually for the support of laboratory. Small appropriation made it necessary for the Department of Agriculture to continue to assist State Board of Health. Annual appropriation, \$2,000."

Even the barest outline or summary this year of public health services provided by the State and the sixty-nine local health departments serving all 100 counties would require many pages. Concurrently with the well-known vast and rapid changes in the private practice of curative medicine has come similarly impressive progress in preventive medicine and public health. Through the years a few physicians have voiced fears that they would have no work if preventive measures were applied to all ills and in-

juries practically preventable. We heard such comments from a few with regard to vaccinations against smallpox, typhoid, diphtheria, whooping cough and tetanus, against the planned parenthood program, against the school health program, against the venereal disease and tuberculosis control program. We hear less of these short-sighted objections today, but there are a few who would limit public health services to the indigent and against only the communicable diseases.

With improved educational methods and more widespread use of preventive measures, prompt diagnosis and greatly enhanced effectiveness of treatment procedures, the communicable diseases have come under relatively effective control with the exception of tuberculosis. Recent examples are the Salk vaccine against poliomyelitis and certain antibiotics against rheumatic fever. The former Captain of the Men of Death, tuberculosis, has dropped until now it is not even among the first ten killers except in limited age groups.

In 1954 diseases of the heart and

*Read before the Conjoint Session of the Medical Society of North Carolina and the State Board of Health, Pinehurst, May 4, 1955.

**Secretary-Treasurer of the State Board of Health and State Health Officer.

blood vessels, cancer, accidents, nephritis and diabetes accounted for 22,623 deaths out of a total of 32,072 in North Carolina. Mental disorders accounted for half the persons hospitalized. Arthritis caused an enormous amount of disability and hospitalization. Improper nutrition caused decreased vitality and lowered efficiency in many. All these, except accidents, are in the non-communicable field or area of chronic disorders. Most medical leaders agree that much progress could be made against them by health education, early diagnosis and prompt medical treatment and supervision.

We are now at about the stage of medical knowledge regarding these chronic non-communicable disorders in which our predecessors found themselves when joint efforts of private practice and public health began to be coordinated against the communicable diseases. The opportunity is afforded us to proceed humanely and cooperatively as was done so successfully against the infectious diseases.

When the Medical Society of North Carolina stimulated the establishment of the State Board of Health and local health departments, medical leaders considered the situation with regard to communicable diseases to be intolerable. Our successful joint efforts have prolonged the life span and helped to create the present intolerable situation with regard to the chronic non-communicable disorders, and our mechanical progress has contributed, at least in part, to our deplorable accident situation. Even such problems as rehabilitation and stream and atmospheric pollution should be of active concern to physicians in private practice and in public health. In one week in December, 1952, the London smog accounted for more excess mortality, even in proportion to the population, than occurred during any week of the great cholera epidemic of 1866.

Our State is fortunate in that we have an alert medical profession well represented on the State and local boards of health. We are one of the few states with full coverage by sound

local health departments. We have made a beginning in cardiovascular disease diagnostic work. We have a good start in finding cancer in the early stages when, in many cases, something can be done to control it—provided the diagnostic efforts are not diverted too obviously into estimating the size of the pocketbook before proceeding with a medical diagnosis. Harnett County has an excellent program of diabetes case-finding and supervision, and physicians throughout the State have cooperated in the annual week of diabetes case-finding. Cumberland County has started an obesity control service. Halifax, Harnett and some of the other counties have had limited experience in multiple screening technics. The mental health services have expanded recently along lines similar to the tuberculosis control work for early case-finding, guidance and then post-hospitalization follow-up to prevent a breakdown. The nutrition service has been strengthened. A recent grant by the Kellogg Foundation has enabled the beginning of an intensive program in control of home and farm accidents. A cooperative program with the Motor Vehicle Bureau has been stimulated by Cornell University consultants in a study of motor vehicle design as it may contribute to, or tend to prevent, serious crash injuries. Some progress in the treatment of arthritis, arteriosclerosis and bursitis has been made, and there is increasing hope of improvement in our knowledge regarding their prevention.

The Rural Health and Public Relations Committees have contributed in a fundamental way in laying the groundwork for a better understanding of, and a willingness and desire to proceed against, chronic disorders, and accidents—just as was the case in earlier improved control of communicable diseases. The work of the private practitioner will be just as ethical and much more satisfying as all chronic disorders are promptly diagnosed and control efforts are increased in effectiveness. Our State is in a strategic position to lead the way in combating

chronic disorders and accidents just as private practitioners and the public

health team joined hands to pioneer in communicable disease control.

DEPARTMENTAL REPORTS

North Carolina State Board of Health

January 1, 1954-December 31, 1954

CENTRAL ADMINISTRATION—J. W. R. Norton, M. D., State Health Officer

The affairs of Central Administration are conducted under the direct supervision of the Secretary and State Health Officer, who serves as Director of this Division. Working directly under his supervision are: The Publicity Officer, Central Files, Personnel, Mailing Room, Multilith Service, and Budgets. The State Health Officer serves in a liaison capacity between the State Health Department and all organizations associated with or related to public health, on the national, State and local areas. He is president of the Association of State and Territorial Health Officers, American College of Preventive Medicine and Southern Branch of the American Public Health Association and is associated with various other organizations in the general group heretofore referred to.

During the past year, the State Health Officer has engaged in many activities involving public relations, as well as executive duties.

Since the 1954 conjoint session the State Health Department has moved into its new building, on Caswell Square, in Raleigh, which was erected at a cost of more than \$900,000. The efficiency and morals of the staff have been definitely increased by working in more convenient and comfortable quarters.

During the past year the publicity officer has transcribed 52 weekly radio programs, for delivery over station WPTF, in Raleigh, and WWNC, in Asheville. Also, under the direction of the State Health Officer, he has prepared news releases and other material designed to keep the public informed as to the available services, duties, and

activities of the State Health Department. He assisted in publicizing and went on a Caribbean cruise conducted by the North Carolina Academy of General Practice, in October, 1954.

The Central Files Section operations continued to expand with the increasing program activities. In this office rests the responsibility for recording, protecting, and filing all official records and their finding when needed. It controls the systematic retirement of records to storage and the disposal of those no longer useful. During 1954, 210,008 records were received for filing and 34,590 searches for material and information were made. In cooperation with the Department of Archives and History, a complete survey and inventory of all the records was made. The majority of the recommendations made have been carried out. Prior to June 1, 1954, when the new Medical Library began operating, 19 new medical and Public Health books were received and 20 journals bound for permanent convenience for reference.

During the year, the mailing room distributed 1,226,956 pieces of literature. The number of envelopes addressed for radio scripts was 16,792, while the number of copies of the Health Bulletin mailed out was 720,000. The mailing room also sent out quantities of material for the various divisions and sections making up the State Board of Health.

Pamphlets on prenatal care were mailed to 12,517 persons, while prospective mothers received 19,501 leaflets. Prenatal Clinic cards mailed out numbered 10,399 and baby feeding cards, 40,861. During the year, more than 23,000 copies of booklets pertaining to children from one to twelve

years of age and 4,607 on adolescence were mailed.

Reports for last year show that 3,466,480 copies of various leaflets and other material were printed on the State Board of Health's multilith machine. The total number of copies passing through the cutting machine was 1,039,175.

Below is a condensed statement of the activities of the Personnel Section, which operates within the framework of Central Administration. This Section during last year cooperated with the State Merit System, the Personnel Department, the Budget Office, the Institute of Government, and other agencies having to do with any phase of personnel activities.

In order to keep classification plans current and responsive to changing programs, five new and forty-one revised class specifications were prepared and approved with eleven specifications being deleted for both State and local health departments. Only seven State salary ranges were revised, whereas fifty-three local salary ranges were revised, the majority of the latter being only one or two steps upward. A simplified procedure was worked out with the Merit System office and the State Personnel Department for establishing new classes of positions and for revising existing class specifications and salary ranges. Considerable time was spent in cooperation with the Institute of Government in connection

with a study of both State and local personnel procedures for the Commission on Reorganization of State Government, the ensuing commission Report and proposed legislation. Vacation leave was made transferable from one local health department to another if the department to which the transfer is being made is willing to accept the leave. A new **Personnel Manual** prepared by the Personnel Section was distributed to key State personnel to facilitate understanding of State regulations.

Within the State Board of Health there were 87 appointments, 99 separations, 27 reclassifications, the majority of which included salary increases, 201 salary increments, 5 other salary increases, and 39 employees certified as permanent. As of December 31, 1954, there were 328 employees of the State Board of Health and 30 vacant positions. This represents an increase of 5 employees for the calendar year.

In local health departments there were 261 appointments, 267 separations, 68 reclassifications, 878 salary increases and 144 employees certified as permanent. As of December 31, 1954, there were 1,104 employees in local health departments and 40 vacant positions. This represents an increase of 17 employees for the calendar year.

The following is a comprehensive statement of amounts budgeted for the fiscal years of 1952-53, and 1953-54, in order to emphasize mainly the sharp drop in Federal funds.

1952-53		1953-54
State	\$2,322,048 (includes misc. receipts -----)	\$2,378,845
Federal	2,233,484 -----	1,878,681
*Special Accounts:	120,985 -----	201,658
Local	3,643,581 (From Public Health Ser. budgets) --	3,902,708
Totals	<hr/>	<hr/>
	\$8,320,098	8,361,892
State vouchers	17,323 -----	16,422
*Special Accounts include:		
Bedding	-----	Bedding
Dental	-----	Dental
Kellogg	-----	Kellogg
Reynolds	-----	TWA-County
Indian Service - County	-----	Indian Service - County

Library Section

The Medical and Public Health Library, made possible by a grant from the Zachery Smith Reynolds Foundation, Inc., was opened on June 1, 1954. It is situated in a large room designed for that purpose when plans were drawn for the State Laboratory of Hygiene.

At the time of its opening, the Library consisted of about 4,000 volumes, including the private library of Dr. Charles O'H. Laughinghouse, which North Carolina's late State Health Officer generously gave to the State Board of Health. Other friends of public health and members of the medical profession have made other contributions, and additional volumes are being purchased. The Library is growing at a satisfactory rate.

It is also receiving a number of medical, nursing, engineering and public health journals. Bound volumes of earlier issues are available for consultation in the Library itself or for leisurely study elsewhere.

The Library's material is available to all the doctors of the State. With a few exceptions, any of this material may be obtained on loan for periods up to two weeks, with the privilege of renewal. The librarian is eager to be of whatever service he can to the medical men and women of North Carolina. He will be glad to assist doctors in locating source material in subjects in which they may be interested.

LOCAL HEALTH DIVISION—C. C. Applewhite, M. D., Director

Local interest in and support of public health in North Carolina has continued throughout the past year. Local appropriations for the fiscal year 1954-1955 have increased by \$322,461 over the previous year. This provided the sole expansion of public health in the State. This fact alone is evidence that the people of the State want a good public health program.

Also very encouraging is the fact that during the year, seventeen more health departments occupied new

quarters. This brings to forty-two the number of health centers completed. Others are under construction, and still others have been planned.

The health officer turnover has continued. There are six health officer vacancies created by resignation, death and transfer to other departments. Five of these have been filled, and in addition, health officers have been placed in four other counties. There are several other vacancies as yet unfilled.

Lack of funds for training has continued to hamper the over-all program. It is feared that unless money is made available for this purpose the entire State will suffer, because well-trained public health people are the mainstay of a good public health program.

Dr. Robert E. Coker, Jr., who resigned in February, was replaced by Dr. B. M. Drake in June as Assistant Director. Dr. John A. Googins, commissioned officer of the Public Health Service, was assigned to the Division for a year's experience as of July 1 and has made a valuable contribution to the program.

In order to better coordinate the efforts of the field consultants of the various divisions, plans were made for conferences of these consultants together with division and section heads. This is but one example of the excellent spirit of teamwork that the Local Health Division has experienced throughout the year.

Administrative Section

As of December 31, 1954, there were 1,144 full-time budgeted positions in local health departments with a total of forty vacancies. Although federal funds for local health services continued to decrease while state funds remained the same, the increased local appropriation was a little more than sufficient to offset the federal decrease, and thus nine of the twenty-three positions originally lost in 1953 through federal cuts were restored. It is noted that of the forty vacancies nine were in the positions of full-time health officers, thirteen in public

health nursing personnel and two in the field of sanitation.

The one hundred counties are divided into sixty-nine full-time local health departments, forty-four county units, twenty-three district units and two city units. The allocation of State and federal funds to the local health departments, the processing of local health department budgets, the mailing of budget instructions to local health officers, the preparation of regular reports, such as the North Carolina Local Health Service Budget, and compiling pertinent information requested by the local health departments continue, for the most part, to be the major activities of the Administrative Section.

Within its available funds, the State Board of Health has for several years sponsored, on a restricted basis, training programs, but limited funds have made it impossible to coordinate and expand such activities to include the essential and needed personnel for our public health program. Particularly during 1954 all types of training have been greatly retarded because of drastic reduction of training funds. The records of the State Board of Health for 1954 disclose that a total of 297 public health workers were given some type of training. Of this number thirty-one were physicians, 227 were nurses, one was a health educator, ten were sanitarians, one was a laboratory technician, fifteen were mental health workers, and twelve were clerks. In the above-mentioned categories training ranging from two days to twelve weeks was received, with the exception of three physicians, one health educator, and three nurses, who were awarded scholarships to attend the University of North Carolina.

The in-service training programs consisted of a post-graduate course in cardiovascular diseases for physicians; for nurses, in addition to necessary orientation, special fields in public health (cancer, heart, geriatrics, tuberculosis, and mental health), pediatric nursing institutes, rheumatic fever seminar, institute on problems of

tuberculosis control, two-day institutes in local health departments on premature infant care, extension courses at the University of North Carolina, courses in premature infant care at Duke Hospital, venereal disease institutes and twelve-week field training courses for newly employed sanitarians.

A legitimate function of the Records and Procedures Analysts is to stimulate interest in better records in the local health departments, which function includes proper recording and analysis of health data.

This responsibility has been carried on routinely over a period of years, but, since there has always seemed to exist a congenitally acquired dislike for records and reports, the program in this line has been slow. However, it is encouraging to note that such an improvement in this has been made that it is considered worthy of comment in this annual report.

In practically every health department there is evidence of more interest in this phase of work. For instance, the annual report is being used more and more for program evaluation. Rather than serving only as evidence of work accomplished, it is being used to determine the needs of a community and whether or not they are being met.

Another evidence that efficient records are being emphasized more is shown by the interest the health officer and other staff members have in sending the clerical personnel to the Public Health Records Short Course. In 1954 eleven girls attended, bringing the total who have attended the five courses to seventy-seven. Of this number, sixteen have resigned from public health, but it is believed that these courses continue to be outstanding.

The Film Library experienced a great year in 1954. All previous records in film requests and film distribution were broken. The only activity which failed to show a gain during this year was new film purchases. The library fell far short of the previous record of \$10,261.05 down to \$3,295.60 spent for new and replacement prints of films. This loss was reflected in the fact that

the library was forced to turn down several hundred requests due to a lack of prints. The library was able to purchase only forty films compared to 163 for the year 1953.

More than 100 films were either replaced entirely or footage replacement was purchased and spliced in to prolong the life and make these films usable again.

During the calendar year the library received more than 5,506 individual requests for this film service. The library distributed more than 12,750 films in 8,416 individual shipments. These films were distributed to borrowers on the following basis of total distribution:

During the school term:

1. Local health departments	----26.8%
2. Public schools	-----40.5%
3. State institutions	-----9.2%
4. Colleges (other than State)	---6.2%
5. Hospitals (other than State)	--7.2%
6. State hospitals	-----2.3%
7. Other (includes individuals, civic clubs, churches, home demonstrations agents, etc.)	--7.8%

During the summer:

1. Local health departments	----25.4%
2. State institutions	-----27.2%
3. Colleges (other than State)	---12.9%
4. Hospitals (other than State)	--11.5%
5. State hospitals	-----3.8%
6. Other (includes individuals, civic clubs, churches, home demonstration agents, etc.)	---19.0%

The library also distributes the venereal disease drugs furnished to the local health departments and the following amounts were distributed during 1954.

12,058 vials or 36,174,000,000 units of penicillin
1,114 vials or 3,342,000,000 units of bicillin
473 vials or 1,419,000,000 units of crystacillin
50 vials or 250 grams of streptomycin
103 bottles or 410,000 mg. of aureomycin
522 - 100 tablet bottles or 26,100 grams of sulfadiazine
25 boxes V.D.R.L. antigen

12 tubes Cortone acetate
5 - 100 tablet bottles pyribenzamine
6 - 1000 tablet bottles A.P.C. tablets
15 boxes Frei test antigen
32 boxes Ducrey vaccine

In distributing the above materials, the library used a total of \$894.51 in postage for fourth class mail only.

The Film Library moved to the new State Board of Health Building, where new storage facilities were provided for more efficient operation.

Public Health Nursing Section

The Section personnel consists of a chief, an educational consultant who was loaned by the U. S. Public Health Service in November for a nine-months period, and five generalized consultants with specialties in tuberculosis, mental health, industrial health and planned parenthood. A sixth consultant, with a speciality in venereal disease, on loan by the U. S. Public Health Service, was transferred out of the State in December, and the district she served was left without a consultant. In addition, there are four specialized consultants assigned to other sections.

The Section continues to give guidance, supervision, and consultation to local public health nurses, to recruit personnel, to provide opportunities for preparation in public health nursing, to coordinate the many activities of other agencies contributing to public health nursing; and to provide in-service education for local public health nurses. The following indicates the need for this service: in local health departments sixty-eight per cent of the staff nurses are not prepared in public health nursing; sixty-nine of the counties do not have local supervisors; thirty-five of the counties have no public health nurse who has completed the program of study in public health nursing.

To meet the needs indicated above, a committee of the Section has been given responsibility for in-service, activities. The opportunities offered to local public health nurses included tuberculosis, venereal disease, some of the chronic diseases, maternal and

child health, including growth and development and midwife supervision; mental health, including an orientation at the State Hospital at Raleigh; and program analysis and planning. Extension courses were planned and offered at the University of North Carolina and Greenville in basic public health nursing.

Well prepared public health nurses are needed. In our State two schools prepare graduate nurses for public health nursing, and three collegiate programs are under way to prepare basic nursing students in public health nursing. To provide field experience for these has required considerable long-range planning. The Section initiated plans to work through the many problems relating to field training.

Public Health Education Section

The only staff change in the Health Education Section was the filling of one of the positions of health education supervisor, effective November 1. This brought to three the professional staff of the section, with one of this number attached to the School Health Coordinating Service. A health educator joined the staff of the Accident Prevention Section in February.

Consultation service on health education was given to the nineteen public health educators working in fourteen local health departments and school systems. Twenty-five local health departments were assisted with a variety of health education activities. Assistance was given other sections of the State Board of Health in materials preparation, community organization for mass x-ray surveys, family life education, joint planning, and in-service training. Personnel of the Section worked with other division staff members in a team approach to local health departments requesting evaluation of their total public health programs.

This Section coordinated the preparation of six exhibits for the North Carolina State Fair in October and cooperated with the Tuberculosis Central Section and the North Carolina Tuberculosis Association in the

preparation of an elaborate exhibit on tuberculosis shown at the National Tuberculosis Association meeting and the North Carolina Public Health Association meeting and scheduled for other showings.

Personnel of the section were active in the work of the following organizations: State School Health Advisory Committee, Arrangements Committee of North Carolina Public Health Association, State Advisory Committee on Training, Western District of the North Carolina Public Health Association, Rural Health Committee of the State Medical Society, North Carolina Health Council, and North Carolina Association of Health Educators.

Orientation was arranged for new employees, student groups, and visitors from India, Mexico, Indo-China and Turkey.

Mental Health Section

Progress and new ventures best describes the Mental Health Section's activities for 1954. The first state-wide conference for mental health clinic personnel was held in Raleigh, January 13-15; a second state-wide conference also in Raleigh, November 3-5.

More in-service training courses were planned for and given to public health nurses than in any previous year. The Wilmington and Charlotte courses started in 1953 were concluded. Three new courses were started for the public health nurses, one each in Fayetteville, Greensboro, and Winston-Salem. One course included eight monthly sessions; two, sixteen bi-monthly sessions.

An intensive educational program was directed to informing people of the need for mental health centers. For instance, a five-year plan which suggested the establishment of ten regional mental health centers was prepared and included in a draft of the "Report on North Carolina's Mental Health Functions and Agencies"; 10,000 copies of a pamphlet "Have You Had a Breakdown?" prepared by the Section were printed and distributed; material was prepared for newspapers and radio.

The Mental Health Section assisted

the North Carolina Hygiene Society in its educational campaign to support the State Health Department's legislative program for ten regional mental health centers. For instance, the North Carolina Mental Hygiene Society was assisted in preparation of news releases, radio spot announcements, the first exhibit to be sponsored by the Society at the State Fair and other educational material. The Mental Health Section also helped the Society plan for Mental Health Week, May 1-7.

In addition to these activities, the use of new statistical forms for collecting clinic data was initiated July 1, 1954. An institute was planned for and given to the people of Oxford and in December three committees were appointed to study mental health personnel positions in the mental health clinics.

Except for Asheville Mental Hygiene Clinic, which lost three of its personnel, and Charlotte Mental Hygiene Clinic, which lost one, North Carolina's six community mental health clinics were fortunate in keeping their present staff intact. In fact, by the end of the year at least two of the clinics were moving to expand their current staffs.

School Health Coordinating Service

The School Health Coordinating Service of the State Department of Public Instruction and the State Board of Health continued to work in much the same way in 1954 as was done in 1953.

Staff members worked primarily with school superintendents, principals, teachers, and health department personnel but continued to cooperate as usual with other agencies and organizations concerned with the health of school children.

The health curriculum guide, entitled **Health Education North Carolina Public Schools**, having been completed, published and distributed, that changed the work of some of the staff members to some extent. Instead of preparing and trying out the materials for the publication, the job became, at least in this respect, one of getting the

schools to use it to improve school health programs. Many regional, county, city, and local school meetings were held to "introduce" the "guide" and to show how the materials could best be used. Health Department personnel attended most of these meetings.

The School Health Coordinating Service continued to administer and supervise the school health program, including planning and administering the expenditure of school health funds in the amount of \$550,000 annually appropriated by the General Assembly to be allocated by the State Board of Education as grants in aid to city and county school administrative units. The plan for allocating these funds for 1954 was the same as followed the previous year, namely: (a) Each county and city school administrative unit was allocated an amount equal to 50c per pupil based on the average daily membership for the first seven months of the previous school year. (b) In addition, the sum of \$1,000 was allotted to each county regardless of size. Each school administrative unit within the county receives a portion of the \$1,000 allotment based on its percentage of the total students in the county.

School health funds have been used to pay for the correction of chronic remediable defects of children of parents unable to pay for such services. However, reports show that the follow-up programs by school and health department personnel have resulted in getting an increasing number of parents who could pay, to seek and pay for medical services for their children.

The policies approved by the State Board of Health and the State Board of Education in 1949, governing the expenditure of these funds, were continued. Also, the State Board of Health continued the plan of earmarking an amount equal to 40c per pupil for school health work. Expenditures of State Board of Education school health funds for the period July 1, 1953 to June 30, 1954 were as indicated below:

Salaries:	Health Educators -----	\$31,345.68
	Nurses -----	94,583.02
	Dentists -----	12,312.95
	Technicians -----	2,825.29
Travel:	Health Educators -----	1,808.40
	Nurses -----	14,230.24
	Dentists -----	420.00
	Technicians -----	637.05
Fees for Medical Examinations -----		\$ 17,803.02
Correction of Defects -----		314,123.79
Supplies -----		23,112.04
Equipment -----		27,621.42
TOTAL		\$ 540,822.90

Services of the staff of the School Health Coordinating Service consisted of planning and promotional work and services to school and health department personnel through consultative service, field visits, planning and carrying on in-service education, production of materials, reviewing and recommending use of materials, locating and recommending the use of local, State and national resources, evaluative procedures, joint state conferences and committees, state and national organizations.

Staff members worked with schools and health departments in the following specific aspects: health instruction, including mental hygiene, communicable diseases, sanitation, family living, community health, personal health, alcohol and narcotic education, heart, cancer, first aid and safety; healthful school living, including physical and emotional environments; and health services, including pre-school clinics, teacher screening, nurse-teacher screening and follow-up, medical and dental examinations, audiometer testing, and correction of defects.

Two staff members worked primarily with elementary and secondary schools in in-service training of teachers in physical education.

SANITARY ENGINEERING DIVISION—J. M. Jarrett, Director

The following is a brief summary of the many activities engaged in by the personnel of this Division during the

calendar year 1954. No attempt will be made to point out the many improvements secured in the field of environmental sanitation in this brief, since detailed monthly reports have been submitted to the State Health Officer and members of the State Board of Health, but several of the more important ones are given mention.

Administration

The staff now consists of a total of 33 people, including the Director, and consists of sanitary engineers, sanitarians, entomologists and secretaries. During the year one secretarial position and one position as Bedding Inspector were established. Practically the entire time of the personnel was devoted to a program of cooperation with and assistance to federal, State, municipal and county officials and other agencies concerned with sanitation problems. As in the past, special assistance was given to the Budget Bureau, the Department of Public Instruction, the Department of Public Welfare, State Highway and Public Works Commission, Hospitals Board of Control, State Department of Conservation and Development, Medical Care Commission, private consulting engineers and architects, municipal officials, and local health departments.

Engineering Section

As has been the case for a number of years, the engineers assisted the operators of municipal water and sewage treatment plants with special operational problems. The Director, as

Chairman of the State Stream Sanitation Committee, participated in public hearings in connection with the classification of the Yadkin River Basin. Staff members also assisted with the Water Works and Sewage Works Operators' Schools and with the industrial Waste Conference. These meetings are held annually and rotate between Duke University, University of North Carolina, and North Carolina State College. The program of cooperation with architects and school officials in planning water and sewerage facilities for the many new consolidated schools, which were built during the year, has continued. The location of new well sites, which is carried on in cooperation with the State Geologist's Office, was also of considerable value and assistance to a number of the towns. Considerable improvement in water and sewage facilities was noted during the year, and a number of additional projects were reviewed and approved, but work was not started during the calendar year. However, there were 37 water improvement projects, which included new systems and extensions and new plants and renovations amounting to \$4,794,176. There were 34 sewerage projects relating to collecting systems and the construction of new sewage treatment plants amounting to \$4,305,205, and there were 8 combined or non-classified projects, which contained both water and sewerage amounting to \$1,293,584, or a total of 79 projects for which contracts were awarded for water and sewer improvements amounting to \$10,392,965.

Cooperative work with the U. S. Geological Survey Laboratory has continued, and information was furnished this office for distribution to interested citizens regarding the chemical character of public and industrial water supplies. This Laboratory also assisted with the control of fluoridation of public water supplies. During the year four towns began the fluoridation of their water supplies, making a total of 19 towns in the State which are now adding fluoride to their public water supplies.

Surveys and inspections were made of all interstate carrier watering points and water supplies, and reports were furnished the U. S. Public Health Service.

Matters relating to the formation of sanitary districts were investigated and during the year one district was formed. Considerable time was devoted to assisting towns concerned with water shortages due to the drought of the last two years. The following towns were seriously affected by the drought during 1954: Apex, Bisco, Blowing Rock, Bryson City, Gastonia, Greensboro, Kings Mountain, Lenoir, Lexington, Lincolnton, Marion, Mocksville, Ramseur, Reidsville, Thomasville, Roxboro, Sanford, Selma, Troy, Valdese and Wilson. Because of "Hurricane Hazel" and the damage done to coastal areas in North Carolina, the engineers devoted considerable time to emergency water supplies and sewage disposal problems, as did the sanitarians, and in assisting public officials. Work was also carried on in connection with the State Department of Civil Defense in assisting these towns to secure federal aid for the rebuilding of their damaged or destroyed facilities. Special work was carried on in connection with the State TB Sanatorium and consulting engineers in determining the degree of treatment necessary for sewage discharged from this institution. Special attention was also given to the study of wastes from small abattoirs. One of our engineers was given a special course of training in atomic waste disposal at the Public Health Service Center at Cincinnati, and he also took part in the Public Health Service program of checking radioactive fall-out particles at the A-Bomb testing ground in Nevada.

Sanitation Section

A large number of special activities were engaged in in the field of environmental sanitation. Considerable time during the year was devoted to assisting the State Prison Director in a study of foodhandling facilities in State prison camps and in planning for

future improvement of these facilities in line with a master plan developed. One man was transferred to this activity and has devoted about half of time to prison work.

In the field of Milk Sanitation, special investigations were completed with regard to bulk milk dispensers, as reported last year, and recommendations were made to the State Board of Health that the use of bulk milk dispensers be approved when operated in accordance with certain sanitary regulations. One of our engineers served on a committee with the State Department of Agriculture in the study and approval of these dispensers. Time was also given to the study of bulk milk tanks used on farms. This work is continuing. Also in the field of milk sanitation, special meetings were held with local sanitarians throughout the State in connection with the interpretation of code requirements with particular reference to the testing of equipment. The usual milk surveys for the certification of interstate milk supplies were carried on by two men assigned to this activity. The program of certification of local milk laboratories, in cooperation with the State Laboratory of Hygiene, was carried forward during the year, and considerable improvement has been noted in the methods and equipment of local health department laboratories doing milk work.

Two films dealing with food poisoning and foodhandling procedure were made in North Carolina by the Communicable Disease Center of U. S. Public Health Service, in cooperation with this office. Considerable time was devoted by two of our sanitarians to helping with the preparation of the script as well as the actual filming of the pictures. These films will be available throughout the United States for use in connection with training courses for foodhandling personnel. The program of foodhandling courses for employees has also gone forward during the year but not as actively as in 1953 because of time consumed by other necessary activities. The usual amount

of time was devoted to helping secure and train sanitarians for local health departments. This field training activity has become one of our major functions in the field of sanitation. The local sanitarians requested and received permission from the local health officers to hold three district meetings per year. These meetings will be devoted to in-service training. The programs will be developed by the Department of Field Training of the School of Public Health at the University of North Carolina and this office. Our men also assisted with a Dairy Fieldman's Course at State College and took part in a course in radioactivity at the University of North Carolina. We also were the host State for the Interstate Sanitation Seminar which was held in Chapel Hill during the year, and much time was given to preparation of this program. Our sanitarians also participated in a number of shellfish conferences, including the National Shellfish Conference in Washington, D. C. A representative also appeared before the Medical Society's Rural Health Conference to discuss environmental sanitation. Thus our training and educational program was not confined to the field training of sanitarians, although two courses were given at the University of North Carolina and in the field training counties.

Insect and Rodent Control

Assistance was given to local health departments throughout the State in connection with the ratproofing of buildings, rat eradication, DDT dusting for ectoparasites and mosquito and fly control. In addition to this, a surveillance program was carried on to correctly establish the existence and location of diseases caused by insects and rodents. Also during the year, considerable attention was given to pest mosquito control in the eastern counties. Areas particularly affected were Dare County, along the beaches, Beaufort and New Hanover counties and Carteret County. Information was gathered regarding the cost of pest mosquito projects in other states in an effort to advise local citizens regarding

the cost of such projects.

The vector demonstration control project at Fayetteville operated for several months during the year. This project was carried on in cooperation with the U. S. Public Health Service and the Cumberland County Health Department. Our engineer and entomologist also assisted the vocational agriculture teachers in Robeson County and assisted with the field training of sanitarians. The impounded water program continues to develop, as a large number of ponds are being constructed as a soil conservation measure and to enable the farmers to have stock watering ponds. Some are being used for irrigation.

The bedding inspection work was transferred to the Insect and Rodent Control Section during the year for administrative purposes, and an additional bedding inspector was employed.

Our entomologist and engineer also spent considerable time with the U. S. Corps of Engineers in connection with the John H. Kerr Reservoir and in an attempt to secure proper control measures and also worked with the Virginia Electric and Power Company regarding the construction of the dams on the Roanoke River in Halifax Coun-

ty. The work on the promotion of sanitary landfills also went forward and considerable attention is being given to this activity as a proper means of disposal of garbage and refuse.

Conclusions

One of the most significant accomplishments in the field of sanitation concerned the moving of the State Board of Health into decent office quarters. The old quarters which we have occupied for a number of years gave visitors a very unfavorable impression of our sanitation and public health programs. It was most difficult for us to promote proper environmental sanitation and enforce laws, rules and regulations and at the same time have our visitors refer to us as being housed in one of the dirtiest State buildings in the city of Raleigh. Approximately two months' time of several members of the staff of this office was devoted to the moving of the offices, but much has been accomplished which will enable all of us to carry on a much better program and in a more efficient manner in the future.

The following is a numerical tabulation of some of the major inspectional and supervisory activities.

NUMERICAL SUMMARY OF ACTIVITIES

Engineering

Public water supply inspections	595
Well sites examined and approved	62
Water samples collected and examined	242
Special investigations conducted (water supplies)	74
Sewerage system inspections	302
Plant site investigations	82
Special investigations (sewerage systems)	61
Sand analyses	36
Water supply plans approved	39
Sewage works plans approved	38
Swimming pool plans approved	9
Sewage plant plans furnished	105
Swimming pool plans furnished	8
Outdoor bathing places investigated	24
Sources of water supply examined for interstate carriers	22
Watering points examined	35
FHA developments investigated	28
FHA cases processed	1,455
FHA Subdivisions processed	31

VA cases processed	52
VA Subdivisions processed	14
Special conferences with engineers, city and county officials	760

Sanitation

Milk plant inspections	154
Dairy farm inspections	1,151
Milk surveys completed	24
Milk plant plans reviewed	6
Special investigations (milk)	12
Milk samples collected	42
Conferences regarding milk	353
Food handling establishments inspected	1,573
School lunchroom inspections	139
Abattoir and meat processing plant inspections	292
Meat market inspections	398
Frozen food locker plant inspections	47
Poultry plant inspections	55
Plans reviewed for food handling establishments	325
Food handler schools held	5
Private water supply inspections	1,052
Private sewage disposal inspections	394
Privy inspections	1,269
Summer camp inspections	18
Institutions inspected	371
Hospital plans reviewed	44
Public school inspections	90
Swimming pool inspections	38
Hotel and tourist camp inspections	153
Complaints general sanitation	148
Special investigations	11
Special meetings	421
Shellfish packing plants inspected	889
Retail seafood markets inspected	121
Patrol inspections of restricted waters	112
Plans distributed	59
Number of court cases	12

Insect and Rodent Control

Communities assisted in planning or supervising landfills	7
Applications received for permits to impound water	1,147
Impounding permits granted	761
Mosquito surveys made	26
Arthropods identified	319
Communities assisted in planning or supervising insect control	7
Impounded water inspections	532
Residual spraying inspections	9
Inspections of refuse storing, collection or disposal	75
Inspections of bedding factories	5,953
Inspections of retail bedding establishments	1,968
Pieces of bedding removed from sale and/or condemned	2,025
Municipal and county board meetings attended	6

EPIDEMIOLOGY DIVISION—Fred T. Foard, M. D., Director

In 1954 the organizational structure of the Division of Epidemiology consisted of the following seven sections: Public Health Statistics, Industrial Hygiene, Tuberculosis Control, Venereal Disease, Veterinary Public Health, Communicable Disease Control, and Accident Prevention. A review of the activities of the group discloses that each made very satisfactory progress in its field in 1954. A brief resume of the work of these sections during the year is presented by the Division Director, followed by the more detailed report of each section.

Resumé

In addition to collecting, processing, and analyzing birth and death records, the Public Health Statistics Section continued its studies of special projects for eleven non-State Health Department organizations. Also during the year all laws relating to collecting and handling of vital records were reviewed in cooperation with the Institute of Government, University of North Carolina, and many amendments to the present laws were drawn for submission to the 1955 State Legislature, with the purpose of clarifying and simplifying operative procedure in processing such records.

Of wide interest is the fact that the crude birth rate in 1954 was higher than in 1953, while the death rate trend was downward for all communicable and infectious diseases.

The Industrial Hygiene Section operated without a medical director for almost the entire year. The principal activities were confined to conducting chest x-rays of employees of the dusty trades. Sixty-nine plants were surveyed, a total of 3,308 employees surveyed, and 3,268 work cards issued. More than 6,800 industrial employees in non-dusty trades were x-rayed. Engineering services were extended to 199 industrial plants, and consultation service was provided to twenty-four local health departments.

In 1954 the Tuberculosis Control

Section's tuberculosis case-finding program, as carried out under the State's mass chest x-ray program, conducted county-wide mass surveys in eight counties, and special group surveys were made in twenty-two individual communities. During the year 301,216 persons received free chest x-rays by this service. The number of tuberculosis cases discovered each year through the mass chest x-ray program is rapidly decreasing, and the cost per case discovered is proportionately increasing to the extent that in the near future it will be economically advisable to confine this important service to special groups. So far, however, the continuation of the program has been deemed advisable so that progress already made in the control of tuberculosis may be retained.

The report of the Venereal Disease Control Section shows that the prevalence of venereal diseases has decreased materially in recent years; however, to maintain this reduction, it is necessary to intensify epidemiological investigation of known cases and contacts to cases as well as to expand selective blood-testing activities. In 1954 medical consultant service in venereal disease control was extended, on an increased basis, to local health departments, private physicians, hospitals, and medical officers at the several military installations in North Carolina. Venereal disease investigators, varying periodically in number, were supervised directly by the Section in 1954. The number on duty at any one time varied from seven to eighteen. Also thirteen locally employed full-time investigators, cooperating with the State Board of Health, were reduced in 1954 to seven, totaling from fourteen to twenty-five investigators available at any time in the year to cover the one hundred counties in the State.

Accomplishments in the veterinary public health field in 1954 include the institution of measures to control diseases of animals transmissible to men. In rabies control, stray dog control programs were begun in twelve

more counties. Dog wardens are now appointed and dog pounds constructed in thirty-eight additional counties. The anti-rabies vaccination program for dogs has been accelerated. Only one human case of rabies occurred in North Carolina in 1954. Special investigations of leptospirosis outbreaks in six counties were also made. The blood of forty-three humans was found positive for various species of leptospira, a disease primarily of dogs but spread to humans chiefly through infected water. Psittacosis was widely prevalent among parakeets and other psittacine birds, with several human cases definitely traceable to infected birds. Investigation showed that a dairy herd owner, whose herd was infected with tuberculosis, had advanced tuberculosis of long standing. He was immediately placed in a sanatorium.

In communicable disease control, prompt and expanded epidemiological investigation of disease outbreaks by Department personnel, cooperating with and at the request of local health officials, was reflected by decreased morbidity and mortality rates from acute communicable diseases. To a considerable extent, this intensified field service was made possible by the assignment of a trained epidemic intelligence officer of the U. S. Public Health Service to this Division for a year. Investigations included the gastro-enteritis outbreaks (200 cases at Davidson College; 500 cases at Washington, N. C.), an explosive outbreak of eleven poliomyelitis cases in Clay County, an outbreak of several meningococcus meningitis cases in Pittsboro, an outbreak of leptospirosis (one fatal human case occurred), and small outbreaks of typhoid fever in Bladen, Guilford, and Halifax-Warren (Littleton) counties.

In 1954 the trend among more important communicable diseases was downward. Poliomyelitis reports decreased 21% under 1953. Infectious hepatitis cases reported showed a decrease of 30% under 1953.

Early in 1954 the Accident Prevention Section completed recruitment

and began full-scale operation. It made rapid strides in bringing to the attention of North Carolinians the importance of preventing home and farm accidents, the annual death toll from which exceeds that from deaths due to all communicable disease. In relative importance in the prevention of disability and death, accident prevention ranks high among preventive measures long since recognized as important functions of state or local health agencies.

This program was made possible in August, 1953, by a grant of funds from the Kellogg Foundation to finance a three-year demonstration project. The professional staff consists of a medical director, one engineer, a public health nurse, and a health educator. It is one of eight similar projects in the United States financed by the Kellogg Foundation and included as routine health programs in state health departments.

Public Health Statistics Section

This Section performed practically all of the statistical services for the State Board of Health in 1954. This involved collecting, processing, tabulating, and analyzing various activities for the health programs carried on by twelve sections of the department. Also special studies were continued or begun for various health and medical groups during the year. Agencies participating with the State office in studies included the Americal Medical Association, American Dental Association, the Maternal Welfare Committee and Anesthesia Study Committee of the N. C. Medical Society, and three medical schools, the School of Public Health, Motor Vehicle Department, Cornell University Medical College, National Office of Vital Statistics, and Children's Bureau.

During the year, 115,775 regular and 17,500 delayed births, 32,070 deaths, and 2,374 childbirths were recorded. All indications point to an all-time high in number of births for the year. In 1954, a total of 30,790 certified copies was issued and 6,852 verifica-

tions were made in order to prove the fact of birth or death. There were 1,046 legitimations and 1,488 adoptions processed, resulting in new birth certificates being issued.

Resident birth and death certificates received for 1954 indicate that the crude birth rate will be higher than in 1953, whereas the death rate will be lower. The provisional rates, based on all certificates of residents received in 1954, with no regard to year of occurrence, are 27.1 live births and 7.5 deaths per 1,000 population.

Since 1925 diseases of the heart have been the leading cause of death. Each year a greater proportion of all deaths is due to this cause. In 1925 the heart disease death rate was 123.5 per 100,000 population; in 1954 the provisional death rate from this cause was 255.9. The other leading causes of death, with provisional rates per 100,000 population and number of deaths (indicated in parenthesis), are as follows: vascular lesions, 100.6 (4,295); cancer, 90.4 (3,859); influenza and pneumonia, 26.7 (1,142); non-motor vehicle accidents, 33.5 (1,431); motor vehicle accidents, 26.0 (1,110); immaturity, 19.2 (820).

The provisional infant mortality rate was 30.5 per 1,000 live births in 1954. The provisional maternal mortality rate was 0.8.

In promoting registration of vital events, administrative contact was maintained with registrars, doctors, midwives, undertakers, registers of deeds, hospitals, and health department personnel. In an effort to obtain more prompt and complete registration of certificates, tabulations by attendant, showing time lag in filing, were made for the counties with the worst records.

The consolidation of four more counties was made with the health officer serving as local registrar for the collection of all vital events, making a total of sixty-four consolidated counties. The remaining thirty-six counties are served by town and township registrars. The ultimate goal is to consolidate all one hundred counties.

Industrial Hygiene Section

Since August 1, 1954, this Section has operated under the direct supervision of the Division Director because of the resignation of the Section Chief. Below is a statistical summary of the Section's activities in 1954:

Dusty trades plants surveyed	69
X-rays taken	3,308
Employees issued work cards	3,268
Employees refused work cards	40
X-rays taken in non-dusty trades	6,821
Pre-employment x-rays read	1,309
Case histories and supplements submitted to Industrial Commission	72
Case hearings attended	37

Engineering services were extended to one hundred and ninety-nine industrial plants and twenty-four local health departments. This was performed with a skeleton staff of two engineers during the first four months of the year and with only one during the remaining eight months. The types of industry served were: cotton textile, asbestos textile, insecticide remixing, mining, quarrying, granite cutting, boiler manufacturing, brick and tile, light-weight aggregate and mineral processing.

Tuberculosis Control Section

Activities during 1954. Community-wide or mass x-ray surveys, using four to six mobile x-ray units, were conducted in eight counties or districts. Special surveys, using one or two mobile x-ray units, were conducted in twenty-two communities. During special surveys special groups selected by health officers, as well as the general population, were surveyed. These groups included state mental institutions, colleges, industrial plants, tuberculosis contacts, and persons who require health cards.

Work Accomplished. The Section's mobile units examined 251,762 persons during the year, which was an increase of 1,210 persons, as compared to 1953. A detailed comparison of work accomplished in 1953 and 1954 is tabulated below:

	1953	1954
1. Persons examined by Section units (miniature film) ----	250,552	251,762
2. Persons examined by Section units on loan (miniature film):		
a. Baptist Hospital, Winston-Salem -----	3,770	2,311
b. Duke University Hospital, Durham -----	16,352	18,310
c. Union County Memorial Hospital, Monroe -----	984	3,108
3. Miniature films interpreted in Central Office for counties and institutions:		
a. Forsyth County -----	17,803	17,453
b. Cabarrus County -----	1,514	1,511
c. Stanly County -----	293	719
d. State Hospital, Goldsboro -----		2,413
e. Cumberland County -----		3,629
Grand Total -----	291,268	301,216

The above tabulation shows an increase in work performed in 1954 over 1953.

Venereal Disease Control Section

Although total venereal disease rates declined a small percentage in 1954, as compared to 1953, the total treatment activity was increased in 1954, because known contacts of gonorrhea and syphilis were treated on an epidemiological (prophylactic) basis.

In fiscal 1954 private physicians greatly improved their reporting of syphilis cases. In 1953 they reported 17 per cent of the total syphilis, while in 1954 private physicians reported 26 per cent of all cases in North Carolina, as compared with about 37 per cent nationally.

Three prevention and control centers for out-patient venereal disease diagnosis, consultation, and treatment were in operation in 1954. They were located in the health departments at Wilmington, Durham, and Charlotte. During 1954 these centers performed 27,830 diagnostic observations, of which 5,048 venereal disease infections were identified.

Selective blood testing activities were continued in 1954. This activity was carried on, in large measure, in conjunction with tuberculosis surveys. The testing of agricultural migrants, industrial and other selected groups was continued.

During the year the Section render-

ed medical consultation to local health departments, private physicians, hospitals and medical officers at the various military installations. Short intensive courses were given to student nurses and public health workers covering clinical facts of venereal diseases, demonstration and participation in patient interviewing, contact investigation, and a general discussion of venereal disease control problems. Educational films and literature were furnished local health departments to aid in their control programs.

There were two major venereal disease epidemics during the year, involving seventy-five persons in Chadbourn and 127 in Greensboro. These two epidemics in late 1954 received national recognition for the thoroughness of the control measures applied and the epidemiologic work-up. The Chadbourn outbreak was a mixed venereal disease epidemic, while Greensboro's epidemic was practically pure syphilis. It should be noted that more than one-half of some 200 persons involved in the epidemic were teen-agers.

Veterinary Public Health Section

During 1954 Section activities centered around the establishment of adequate rabies control programs in the various counties. In this period boards of county commissioners in twenty counties appointed county dog wardens and constructed sanitary dog pounds.

Organized stray dog control provided by a dog warden is essential to an effective rabies control program. Progress also was made toward improving dog immunization programs. As a result of these activities, the number of human antirabic treatments dispensed by the State Laboratory has been significantly reduced. One human rabies death was investigated during the year.

The tremendous increase in the sale of psittacine birds (parakeets) has resulted in an increased incidence of human psittacosis. Reports of human cases have been investigated in eight counties. Regulations relating to the control of psittacine birds have been revised. Birds in known infected aviaries have been destroyed. A survey is being made to determine whether or not psittacosis is also present in domestic fowl, especially turkeys.

Several requests that the State Board of Health supervise the inspection of poultry for wholesomeness were received from one large health department outside North Carolina. This Section has assisted county health departments and local poultry processors in providing consultation relative to poultry inspection. The introduction of an enabling act in the 1955 General Assembly to permit inspection is being considered.

Assistance often has been given to local health departments in developing more effective meat inspection programs and in investigating numerous diseases of animals transmissible to man.

Leptospirosis, a disease of man and animals having its reservoir in animals, is being recognized more frequently by physicians. Numerous human and animal cases have been investigated during the past year. A reliable diagnostic test has been made available to physicians and veterinarians during 1954. This test is essential for a differential diagnosis, as leptospirosis resembles several other infectious diseases and conditions in men and animals.

In 1954 the Section Chief prepared

two papers on veterinary public health for publication and gave several lectures at the School of Public Health and North Carolina's three medical schools.

Communicable Disease Control Section

Continuing a trend established in the past two decades, the acute contagious diseases decreased in prevalence and severity in North Carolina in 1954. All the contagious diseases, including tuberculosis, considered as a group, ranked as the seventh leading cause of death in the State, and no single contagious disease, considered separately, caused sufficient deaths to rank among the ten leading causes.

Conditions such as tuberculosis, diphtheria, typhoid fever, syphilis, influenza, and others, which once numbered their victims among the thousands, now claim lives in the hundreds or the dozens. With many diseases, the death rates no longer can serve as an index of their severity, and one must refer to disability rates, both temporary and permanent, loss of efficiency, and other such factors in order to characterize the magnitude of the acute disease problem.

The task confronting private physicians and public health workers in the field of communicable disease control is now largely a matter of surveillance to insure that once vanquished diseases do not recur. Activities leading to a high level of mass immunity have been fostered in addition to accelerated endeavors in the area of investigation of unusual or suspicious outbreaks of disease.

Additional studies regarding the epidemiology of these diseases about which knowledge is still incomplete have been undertaken. Encephalitis, blastomycosis, leptospirosis, infectious hepatitis, and psittacosis, all have received detailed study to this end.

There is a continuing responsibility for the forthright education of the public as to the true severity of disease problems. As an example, poliomyelitis continues to strike terror in the hearts of many persons in the State, while

in reality during the past five years North Carolina ranked thirty-ninth in the nation in the number of poliomyelitis cases reported per 100,000 population.

An enlightened citizenry, both professional and lay, have within its grasp the tools for the further reduction of suffering and anxiety caused by the communicable diseases.

Accident Prevention Section

Accidents continued as a major cause of deaths, injury, and permanent disability in 1954 in North Carolina. Motor vehicle accidents have received wide publicity and attention, but only within the past two years have home and farm accidents been recognized as a major health problem.

For the past five years, for every one hundred highway accident deaths there have occurred from seventy to seventy-five accident deaths in the home and on the farm to rank these accidents as the second most important single type of accident in the State.

Beginning in 1953 and continuing in 1954, the North Carolina State Board of Health has taken pioneer steps in the development of home and farm safety activities as one of eight states in the United States selected by the W. K. Kellogg Foundation to initiate such activities under a special grant from the Foundation.

The professional staff engaged in developing this program is directed by a trained epidemiologist, and this group inaugurated activities with a study of the epidemiology of home and farm accidents. Based on these significant findings, a program of public information and education has been started, utilizing, to a large number, the local health departments in the State.

In addition, cooperative relationships have been established with more than a score of safety agencies, each active in some field of accident prevention, as well as with state and local professional societies and lay groups.

It is the philosophy of the State Board of Health that, while state-

level safety activities may make great progress in focusing attention on the problem, the prevention of accidents can be achieved only at the community level, and every step has been taken to bring safety education to every county, city, home and family in the State.

ORAL HYGIENE DIVISION—Ernest A. Branch, D.D.S., Director

The Division of Oral Hygiene recognizes the continued need and urgency of finding and promoting the most effective measures for improving the dental health conditions of the people, especially the children, of North Carolina. Surveys show that approximately 85 per cent are in need of dental attention. Teeth decay is our number one physical defect. The average person—at age 16—has 16 decay sites involving 7 teeth. Dental authorities agree that a losing battle is being waged against tooth decay and that prevention offers the only solution. It is generally conceded that this can best be accomplished by providing dental health education programs for children and their parents. It is our belief that such a program should include.

1. Education to appreciate good dental health and to know the accepted protective measures.
2. Motivation to assume personal responsibility for dental health.
3. Early detection and correction of dental defects.
4. Promotion of preventive measures, such as the fluoridation of municipal water supplies and the topical application of sodium fluoride to the children's teeth.

Before giving a report of the Division's progress in 1954 toward the accomplishment of these objectives, something of the *modus operandi* should be pointed out. The Division of Oral Hygiene has a staff of public health dentists who go into the elementary schools to conduct mouth health education programs. When a dentist is sent to a county he reports to the County Health Officer and works as a member of the local health department staff.

The counties share in the expense of the program. In each local health budget there is an item for dental services which, in all but the six counties having full-time dentists, means for participating in the services offered by the Division of Oral Hygiene. Each county defrays approximately one-half of the expense of the program in that particular county, and the State Board of Health takes care of the balance. Each county has a local practicing dentist as one of the members of its County Board of Health.

During the year 1954, the staff of the Division of Oral Hygiene consisted of the Director, an average of 13 school dentists, an educational consultant, an artist, 2 puppeteers, and

clerical help. Mouth health programs were conducted by the staff dentists in 44 counties.

In presenting the following statistical report we note with satisfaction and gratification the upward trend in numbers of children receiving the services. Indeed, it appears that 1954 marks a definite turning point after the difficult and discouraging decade between 1942 and 1952. It has been impossible to maintain a staff of dentists adequate in numbers to meet the needs and demands for the services. During the past two years, however, our efforts in the area of recruitment have been more fruitful, and indications are for continued success.

SUMMARY OF CORRECTIVE AND EDUCATIONAL WORK BY DENTISTS

Number of schools visited	567
Number of children — mouths inspected	106,780
Number of underprivileged children receiving dental corrections	40,832

AMOUNT AND CLASS OF TREATMENT ITEMIZED AS FOLLOWS:

Number amalgam fillings.....	14,580
Number cement fillings.....	2,732
Number silver nitrate treatments.....	51,750
Number teeth extracted.....	29,997
Number children — teeth cleaned.....	25,792
Number sodium fluoride treatments.....	4,084
Number miscellaneous treatments.....	7,323

TOTAL NUMBER OF OPERATIONS 136,258

Number of teeth extracted that were six year molars	5,571
Number of teeth filled that were six year molars	11,026
Number of children referred to local dentists	57,760
Number lectures on Mouth Health	2,875
Total attendance at lectures	107,272

In analyzing the foregoing report we call especial attention to the classroom instruction by the school dentists and the attendance on these lectures by 106,780 children. Not only have these children received valuable information from the person best qualified to give it to them, but they have also become acquainted with a dentist and have learned to consider him as their friend. The corrective service for the under-privileged children is termed demonstrative teaching. It must also be remembered that these are child-

ren who, otherwise, would not have had dental attention—over 40,000 in 1954. It would be impossible to estimate in terms of prevention the benefits received by this group of children. Of particular significance is the number of six year molars filled. These 11,026 six year molars may be regarded as that many permanent teeth saved. The 5,571 six year molars extracted tell another story. But even these lost teeth tell a story of the relief of pain and the prevention of even more serious ills through the removal of

sources of infection.

An important group represented in the report is that of referred children, 57,760 in number. These are the children whose parents are financially able to take care of their needs. Even the privileged need reminders. These are the children who can and should be motivated to accept personal responsibility for their own dental health. The Division of Oral Hygiene strives constantly to develop on the part of the public the appreciation of good dental health and good dentistry and the awareness that there is a definite relationship between an unhealthy mouth and systemic disease.

While the services listed in the 1954 statistical report are, of necessity, limited to the counties and schools in which the staff dentists conducted programs, other services of the Oral Hygiene Division are available to all counties and schools.

A major service of the Division of Oral Hygiene is the preparation (writing, illustrating, and printing) and distribution of dental health education material for use in the schools. This is available, upon request, to the teachers. We are glad to report that many appreciate and take advantage of this service. Approximately 1,000,000 pieces of literature were distributed during the year, 1954. It is noteworthy that the material is dispensed only in response to requests.

The 19th consecutive year of Little Jack's puppet show was most successful. The show was presented to more than 150,000 children during the year. We believe that this visual education project is effective in supplying good dental health information and motivation.

The activities of the Division as well as its dental health message have been presented to professional groups and to the general public through talks by the director and other staff members, newspaper articles, radio programs, and exhibits. Exhibits were presented at annual meetings of The North Carolina Dental Society, The North Carolina Public Health Association and

The Rural Health Conference and at the North Carolina State Fair. Exhibits were also loaned to county health departments.

We realize that, in spite of our increased efforts and activities in the field of dental health education, there is still a wide gap between needs and services. Evidence continues to point to the fluoridation of public water supplies as an effective means of preventing tooth decay and, thereby, reducing the needs for dental service. It is with regret that we note some opposition to this measure, in spite of the unqualified endorsement of its safety and efficacy by well qualified and authoritative scientific groups. During the year 1954, four North Carolina towns joined the ranks of those in which fluoridation is in operation. This brings the total to 19 cities with a combined population well over the 600,000 mark. In many other towns the matter is under consideration. To aid the communities in securing popular acceptance of fluoridation, the Division of Oral Hygiene has published literature, a booklet and a leaflet, on the subject. These are available upon request. The North Carolina State Board of Health recommends fluoridation and stands ready to assist local groups in promoting it. However, it must always be kept in mind that fluoridation is only one preventive measure. We must continue in our program of mouth health education to provide information and motivation to the end that our people will appreciate and strive to attain good dental health.

PERSONAL HEALTH DIVISION—A. H. Elliott, M. D., Director

Heart

The program has in the past consisted primarily of physician and lay education and secondarily of trying to put patients whose screening tuberculosis x-rays indicated abnormality of the heart or great vessels in touch with their family physicians.

Education: The Section provided three-day refresher courses in cardio-

vascular disease at Bowman Gray for approximately thirty rural general practitioners in June and again in October and provided two courses for approximately the same number of practitioners at Duke in the fundamentals of electrocardiography in June and January. The June course is strictly for beginners and the January course for more advanced training. Other forms of education consisted of providing subscriptions to the **HEART BULLETIN** for all general practitioners, internists and cardiologists of the State Medical Society and for all colored physicians. Another one consists of sound films and leaflets in the field of heart disease.

Consultation service was provided for three special studies of rheumatic fever in school children in Durham, Wilmington, and Lenoir. During the year the Heart Section relieved the Crippled Children's Section in supplying penicillin for rheumatic fever patients.

Cancer

One new detection clinic was started during the year, and one was closed for lack of attendance, leaving the number of detection-diagnostic and detection only at six each. The case finding program examined 9,806 persons in 3.3 per cent of whom cancer was found, (327 cases); 774 biopsies and 38 diagnostic X-rays were provided. Smears are done routinely on adult females and examined in the State Laboratory. Referrals to private physicians accounted for 198 biopsies, 47 diagnostic x-rays, 111 dilatations and curettages and 446 non-cancer operative procedures. X-ray therapy was recommended for 55 patients. Under the three-day hospitalization for diagnosis program, 473 patients were handled at a cost of \$21,735.33. The cancer treatment program for the indigent hospitalized 351 patients at a cost of \$72,453.48. Both the hospitalization programs had to be discontinued for a four-months period because of the exhaustion of funds. The gastric cancer mobile unit continued to do routine

annual x-rays on manageable inmates of the State Hospitals. Approximately 4,000 of these were done. The radiologists are processing the summary of their findings and evaluation of the study on the first 10,000 patients handled on this unit.

Maternal and Child Health

A thoroughly trained obstetric consultant was added to the staff during the year. Our pediatric consultant resigned to take a position with the Children's Bureau in the Chicago area. Several new M&I clinics were opened. An intensive three-day refresher course in pediatrics and obstetrics was given at Bowman Gray for thirty-odd clinicians and health officers who conduct M&I clinics. Prenatal care was provided through these clinics for 31,610 patients, and well baby care was provided to 51,158 babies. A special study into the possible causes of miscarriages, stillbirths and neonatal deaths occurring in the three hospitals associated with the medical schools was put into operation. The usual immunizing materials, vitamins and literature were supplied to the local health departments. A two-week refresher course was given 36 midwives. In addition to this number, 5 midwives who had attended previous courses acted as group leaders. At the same course public health nurses from the counties sending midwives helped with the teaching and prepared themselves for a better followup of midwives in their counties. A three-day course in the public health nursing aspects of the midwife program was conducted for 18 nurses.

The premature program continued on its routine basis of teaching, demonstrating and paying for the hospitalization of a certain number of very small infants of low-income parents at the six primary centers. Hospitalization of 389 infants was paid for by our program. Eight secondary centers are operating under the guidance, but without the financial support, of the MCH Section.

Crippled Children

The staff lost the services of one physical therapist but was able to employ another on a part-time basis. The demands on this program are so great that the budget cannot possibly take care of them. Because of inadequate funds, the rheumatic fever program at North Carolina Memorial Hospital was discontinued December 31, and only emergency or special cases have been accepted since the first of the year. Plans for speech and hearing defect program are complete, but lack of funds prevents activation of this program. This section, with the help of the School of Public Health and the State Board of Health's consultant nurses, conducted four strategically located workshops for public health nurses in the care of children, especially those with handicapping conditions. These workshops were extremely well received. Approximately 40 clinics on a monthly basis were operated during the year. Service was provided 10,220 children, and 1,418 children were hospitalized.

Nutrition

Because of limitation of trained personnel, the nutrition program continues to work primarily on a request basis, though the staff is larger at present than ever before. Nutritionists work chiefly through local health department personnel, school personnel and various and sundry civic groups. An appreciable amount of work is done on an individual basis with persons referred from organized clinics and individual private practitioners. A few statistics on the activities of this section are as follows: the nutrition consultants conducted in-service training programs for 943 nurses, 2,316 teachers, 167 welfare case workers and, 2,818 adults in community programs. They gave consultation service to 1,367 professional and 1,617 non-professional persons. They attended 42 orthopedic clinics, 130 prenatal clinics, 48 well-child clinics, 21 preschool, 15 overweight clinics and 12 diabetic clinics, with a total of 2,970 patients referred for in-

dividual diet instruction. They surveyed 208 children in seven schools.

The dietitians serve as consultants in most of the State hospitals and prisons and for quite a number of local hospitals. Personnel in this Section join with the North Carolina Hospital Association in putting on an institute for food service managers in small hospitals. The Nutrition Section worked very closely with the Director of Prisons and did some special studies, one of which resulted in working out a canned preparation to be used in the prison for prisoners in solitary confinement. The idea is to provide a diet that will sustain health but likely would become extremely monotonous and at no time could be considered palatable. The nutritionists cooperated with public health officials in in-service training programs for operators of boarding homes, particularly those for the aged. They also participated in workshops for school lunch supervisors. In a limited number of cases, the nutritionists, with the help of public health nurses, provided special consultation service, followup, etc., for reducing classes for persons referred by physicians. One of the most important functions has been systematic in-service training programs for public health nurses and short refresher courses in nutrition for school teachers. The Public Health Service has had considerably more requests than could be granted for field training of nutritionists and dietitians referred by a number of universities and schools of public health nutrition. The fact that nutrition is relatively new as a specialty in public health, and the fact that progress is being made in this field is expressed in the following paragraph from Dr. Bosley's annual report:

"The Nutrition Section of the State Board of Health has frequently encountered both resistance and indifference to the idea that nutrition is an important factor in health and, therefore, an essential part of a public health program. There is evidence that interest in nutrition is increasing

among public health people and they, in turn, are encouraging others to improve their food habits. Eventually, there should be some concrete evidence among the population groups of the effectiveness of its application. It has been well-established in the plant and animal industry. It can, and will, some day, be equally well-established for the human race when man decides to forego some of his accustomed habits and make use of known scientific facts that promote better physical and mental health."

Heart Section

The Heart Section gave a three-day

Number of letters to patients in regard to their chest x-rays.....	1,620
Number of letters to the family physicians of these patients.....	1,620
Number of cards and letters from doctors and patients saying the patient had reported to his doctor.....	1,241
Number of letters to patients who did not give the names of their doctors, enclosing cards for this information.....	43
Number of patients who died before they received our letters.....	5
Number of final reports made to County Health Officers of the work done in their counties: Alleghany-Ashe-Watauga, Avery-Yancey-Mitchell, Burke	3

Cancer Section

One new Cancer Center was opened during 1954. This Center, known as the Wake County Cancer Detection Center, opened at Rex Hospital in Raleigh on October 5.

The Halifax County Cancer Detection Center closed in April, 1954; and, therefore, the total number of centers in operation in the State remains at twelve.

The six Cancer Detection Centers, only, are in Burlington, Lincoln Hospital in Durham, Sylva, Elizabeth City, North Wilkesboro, and Raleigh. Detection and Diagnostic Centers are in Asheville, Watts Hospital in Durham, Rocky Mount, Greensboro, Wilmington, and Rutherfordton.

A total of 9,806 detection examinations were made in these centers during the year. Of this number, 5,480 persons were referred directly to their personal physicians. Another 1,964 examinees were referred to a Diagnostic Center for further study and then to their personal physicians for treat-

ment, making a total of 7,444 referrals to physicians. These referrals represent 75.9% of total examinees.

During the year 327 cancers (involving 3.3% of all examinees) were diagnosed in the centers. Some types of pathology were found in 7,229 other instances, with only 2,250 (22.9%) completely negative examinees reported.

To aid in making diagnoses, these centers did 774 biopsies and 38 x-rays. The Center staffs recommended to the private practicing physicians that an additional 198 biopsies and 47 diagnostic x-ray studies be made. They also recommended that 55 patients receive x-ray therapy, that 111 D & C operations be performed, and that 446 other operations be done. Smears were done by the State Laboratory.

The hospitalization programs for the treatment of medically indigent cancer patients and for the diagnosis of possible cancer in the medically indigent were in operation for as much of the year 1954 as funds were available.

The hospitalization programs for the treatment of medically indigent cancer patients and for the diagnosis of possible cancer in the medically indigent were in operation for as much of the year 1954 as funds were available.

A total of 351 new cancer cases were approved for treatment, and bills paid totaled \$72,453.48 (State funds). For the same period 473 new cases were approved for hospitalization not to exceed three days in order that a definite diagnosis could be made. Bills paid under this program totaled \$21,735.23 (Federal funds). As a result of a lack of money, both of these programs had to be closed for four months of the calendar year.

The Gastric Cancer Mobile Unit continued its program in connection with the State Hospitals during 1954, and approximately 4,000 patients received x-ray studies of the stomach and esophagus on this Unit.

Crippled Children's Section

In June, 1954, the Section lost a physical therapist by resignation. The entire load of clinic attendance and local aid to physical therapy has devolved upon the two remaining full-time therapists, with the aid of a part-time assistant who is paid on the basis of clinic attendance. Every effort has been made to procure another full-time therapist, without success.

In December of 1953 we declared \$35,000 as a probable excess of appropriation and authorized the Children's Bureau to retain that amount of the last quarter's appropriation. The end of the fiscal year found us in arrears by approximately that amount, and the necessity for maintaining a close record of encumbrance was very definitely pointed up.

During the first six months of the calendar year it began to be apparent that requests for service were gradually but steadily exceeding our appropriation ability to serve. This became very apparent in the last month of the fiscal year when service was accorded to a large number of children immediately after the close of school. This resulted in rapid dissipation of our funds, and encumbrances for the period had to be supported through funds appropriated by the State for the new fiscal year, inasmuch as Federal funds appropriated for service in one year

cannot be used to pay for service completed in the year past.

The demands for service during the first six months of the new fiscal year (the last six months of the calendar year) failed to either plateau or taper off, as we had presumed would be the case, and in December it was definite that significant retrenchment was indicated. The Advisory Committee was called to a meeting on December 19 and approved of means to accomplish this retrenchment, as follows:

- (1) Reduction of surgeons' fees.
- (2) Restriction of authorizations for service to those of urgent or emergent character.
- (3) Close check and limitation of hospital days.
- (4) Program support of but half the cost of appliances.
- (5) Reduction of validity of authorizations to thirty days.
- (6) Retreat from the field of support of treatment of some of the recently accepted ultra special entities.
- (7) Discontinuation of support of the Rheumatic Fever Center of the University of North Carolina and North Carolina Memorial Hospital.

These measures, with the exception of the last-mentioned, became effective retroactive to December 1, while (7) above became effective January 1, 1955.

The Section initiated a system of encumbrance recording aimed at keeping expenditures within the limits of allotted income for each month and quarter.

The office has added one filing clerk.

Periodic bulletins of information have been published and distributed about once a quarter, and work has been initiated on the composition of a new operating manual. A new plan was submitted to the Children's Bureau in July and was accepted. Included in this plan was a section for service on speech and hearing defects. This has not been initiated because of a lack

of funds.

The nursing consultant component of the Section, with the School of Public Health and the generalized consultants of the State Board of Health, conducted workshops in four areas in the problems of children with

long-term illness and handicapping conditions. These seminars of four days' duration were well attended and very instructive.

Service statistics for the calendar year 1954 were as follows and reflected a definite increase over those of 1953:

	Number Treated	Visits or Days Care
Clinic Service.....	10,220	20,587
Hospital In-patient.....	1,418	18,169
Other service by physicians (Out-patient, office, home etc.)..	1,288	849
Total unduplicated count of children who received physician services: 11,093 (one or more specified in lines 1 to 4)		
Entities most frequently treated (First 10 of 41 conditions)		
(1) Polio.....		1,866
(2) Diseases bones and joints other than congenital, tuberculous, osteomyelitis, or others specified.....		1,296
(3) Clubfoot.....		1,146
(4) Flatfoot.....		1,143
(5) Cerebral Palsy.....		785
(6) Congenital other than clubfoot, hip, face, spinal and others specified.....		762
(7) Miscellaneous diseases, injuries or other handicaps.....		693
(8) Accidents, poisonings, violences.....		545
(9) Curvature of spine other than congenital or effect of polio or tuberculosis.....		303
(10) Cleft palate and lip.....		246

With constant increase in requests for essential service for handicapped children and with no significant increase in appropriations (Federal or

State) to support such service, the program for aid to these children cannot be more than half effective.

M&I CLINICS

1954

Total number of clinics conducted.....	5,009
For white only.....	726
For colored only.....	1,209
For white or colored.....	3,074
For Maternity patients only.....	856
For infant and preschool only.....	1,686
For maternity or infant and preschool.....	2,467
Attendance — Maternity patients.....	31,610
Infant and preschool.....	51,158

Nutrition Section

The activities of the Nutrition Section have been carried on within the framework of its (1) objectives; (2) personnel and (3) the objectives and

activities of the local health departments with which it works.

The plan of operation of this Section differs somewhat from that of other sections in that, since local health

departments have not been able to employ full-time nutritionists for their staffs, they request direct as well as consultant service from the Nutrition Section. The Section, therefore, has developed a plan which allows its consultants to maintain regular monthly schedules of work in the local departments. This means that, through joint planning with a local health department staff the nutritionist becomes administratively responsible to the local health officer and regularly works in specific clinics, such as prenatal, well-baby, overweight, diabetic, and orthopedic. This regularity in visits to the local health department also means that the consultant is able to assist the staff of a department with its planning and participation in nutrition services and activities with other community agencies and groups.

The advantages in this plan are obvious, since local health department personnel is limited. Local health departments receive assistance in the nutrition component of their basic public health programs (both direct and indirect) and in their cooperative community programs. This is important, for there are few communities in the State with access to the services of a **trained** nutritionist. Such a plan gives a department assurance of continuity of service in program development.

There are disadvantages, too, since the local departments have requested and need more help from the nutritionist than is now available. There are too few days in a month to provide more than minimum service to a portion of the counties in the State with the present number of consultants. When there are vacancies on the staff, as there were for part of this past year, the services are curtailed to include only requests with some degree of urgency. This has the effect of reducing the possible achievement of the objectives of the Section program and the nutrition objectives of the local departments.

During the year three vacancies on the consultant staff were filled by

Misses Helen Meadors, Mildred Barry and Vera Kerstell, thus permitting the Section to have a consultant for nine of its ten districts for the first time in its history. It has not, as yet, been possible to fill the position of Principal Nutritionist left vacant by the resignation of Miss Gladys Strawn in April, 1954. There were no changes in the staff of dietary consultants.

This report, therefore, represents the activities of a partially complete staff working in 71 counties as time would permit.

The nutrition consultants conducted in-service training programs for 943 nurses, 2,316 teachers, 167 welfare case workers and 2,818 adults in community programs. They gave consultation service to 1,367 professional and 1,617 non-professional persons. They attended 42 orthopedic clinics, 130 prenatal clinics, 48 well-child clinics, 21 pre-school clinics, 15 overweight clinics, and 12 diabetic clinics, with a total of 2,970 patients referred for individual diet instruction. They surveyed 208 children in seven schools.

The dietary consultants visited 15 State institutions 46 times. They gave consultant service to 42 hospitals and 11 county homes. They reviewed plans for renovation or construction of new kitchens for 49 hospitals. They provided in-service training for 542 non-professional and professional personnel.

There are similarities in activities throughout the State, but the specific needs of certain departments and institutions result in an interesting variety of services.

The Section staff participates in a number of special projects. During the summer the second annual institute for food service managers was held in Chapel Hill for hospital administrators and food service managers from small hospitals. This was sponsored jointly by the North Carolina Hospital Association, the North Carolina Dietetic Association, and the North Carolina State Board of Health. This three-day institute was attended by 35 persons representing 28 hospitals.

A project of special interest was a

study made at the request of the Prison Director of the diets served to prisoners. The review of the kinds and amounts of food served over a three-month period in eight prison camps and the Central Prison provided essential information. The results of this study are being used by the Prisons Department in the development of its agricultural, food purchasing and food service programs.

One other project carried on for the Prison Department was the development of a formula for a diet to be served to prisoners in solitary confinement. This project, which is a type of liver mush, of high nutritive value, provides a monotonous but adequate diet which may be served for an indefinite period of time. The Section received invaluable assistance in the processing of this product from the laboratory of the American Can Company. It canned two different formulas sent to it by the Section, to determine the necessary techniques to be followed and the feasibility of canning the product for distribution to the camps. The company cooperated further by sending consultants to the Prison to supervise the canning of the liver mush in the prison cannery.

In conjunction with the State Board of Public Welfare, nutritionists and dietitians participated in in-service training programs held throughout the State for operators of boarding homes for older people. The nutritionists also participated in the two workshops for school lunch managers sponsored by the school lunch supervisors and the State Department of Public Instruction.

In four counties of the State, the nutritionists participated in group weight control programs initiated and sponsored by civic groups in the counties. The development of this type of program has not been encouraged except when satisfactory arrangements can be made with members of local medical societies in the community for referral of their patients to the groups. Physicians and psychiatrists have participated in these projects, along

with nutritionists and other persons. The problem of weight control is sufficiently complex to be approached only after careful planning, particularly with reference to the follow-up. It does, however, permit emphasis upon a nutritionally sound diet which should be followed by all persons for the maintenance of good health.

One health department has established a clinic for overweight patients referred by physicians. This clinic (only 14 months old) originally planned for once a month grew so rapidly that there are now two regular monthly clinics. At present it is staffed by a nurse and a district nutritionist. The nurse obtains the history and other pertinent data, such as blood pressure, etc. The nutritionist advises all patients on their diets. The nursing staff checks these patients on home visits in their districts. The program appears to be meeting with success and points out the importance of planned follow-up and individual guidance.

Referrals for nutrition instruction from orthopedists still show a preponderance of the cases in the category of overweight, but increasing numbers of patients are being referred for problems such as child feeding, adequate care for children in families with low incomes, anemia, undernutrition and high vitamin diets.

The nutrition consultants have continued their in-service training programs on a quarterly basis for public health nurses and the short refresher course in nutrition for public school teachers. Both educational programs require continuous follow-up service for effectiveness. Since these two training programs have been in operation for ten years, the follow-up program has become extensive. It is gratifying, however, to see the public health nursing supervisors and the county educational supervisors initiate more educational programs and assume more responsibility for continuing the work started by the nutritionist.

The Nutrition Section receives a number of requests from schools of

public health and universities, training nutritionists and dietitians for public health, to supervise field training for their students. It was not possible to accommodate all of the schools in 1954, but five students did receive field training under the direction of the Nutrition Section staff. One of these was a public health dietitian from Teachers College, Columbia University. The four nutritionists were sent by the School of Public Health, University of North Carolina; Penn State College and the School of Public Health, University of Pittsburgh; the University of Tennessee and the Harvard School of Public Health. The student from the latter school is studying for his Doctor's degree in Public Health. The other students were receiving Master's degrees.

For the past few years dietetic interns from Duke Hospital have been receiving a two-week field training program each in the Durham County Health Department under the supervision of the Health Department staff and the district nutritionist. This has been greatly appreciated by the School of Dietetics at Duke University but has meant supervision for a period of about six months each year, since there are approximately twelve students each year.

During the past year Charlotte Memorial Hospital arranged for a three-week field training period for each of its dietetic interns with the Charlotte City Health Department and the district nutrition consultant. This has proved to be a highly rewarding plan for both the hospital and the Health Department.

Members of the Nutrition Section, along with members of the Crippled Children's Section, have continued to participate actively in the operation of the two camps for children with orthopedic handicaps at Washington and at Salisbury and the camp for children with speech defects at Salisbury. Assistance is given in menu planning and guidance of the food service manager in the operation of the kitchen and the preparation of food.

The Nutrition Section of the State Board of Health has frequently encountered both resistance and indifference to the idea that nutrition is an important factor in health and, therefore, an essential part of a public health program. There is evidence that interest in nutrition is increasing among public health people and they, in turn, are encouraging others to improve their food habits. Eventually there should be some concrete evidence among the population groups of the effectiveness of its application. It has been well established in the plant and animal industry. It can, and will, someday, be equally well-established for the human race when man decides to forego some of his accustomed habits and make use of known scientific facts that promote better physical and mental health.

An excerpt from a recent publication, reprinted in the **North Carolina Medical Journal** is aptly phrased: "Nutrition and Food. The nutritionist didn't have an easy task at first in his educational efforts. On the one side he was opposed by the critic who advanced that many years ago a lot of people were healthy who took no pains to balance their diet. True, they didn't take any pains, because their diet was naturally balanced; it was balanced by tradition and by experience. What the new knowledge told us was why these people were healthy in spite of taking no pains. But there were many more less fortunate folk who were not healthy but we did not know why. Children were stunted and mothers died in childbirth, or could not stand up against the strain of nursing; and now we know why. Then again, it was difficult to get the new knowledge across to the individual. To tell a 15-stone man that he was overweight but undernourished took a good deal of explaining and even the *Readers' Digest* didn't help in cases like this".—Horder, L.: *Fifty Years of Medicine*, New York, Philosophical Library, 1954, p. 23.

The Nutrition Section's objectives, stated in past reports, will be continu-

ed for the furtherance of better health of North Carolinians.

LABORATORY OF HYGIENE DIVISION—John H. Hamilton, M. D., Director

From some aspects the year 1954 looks like just another year of useful service for the State Laboratory of Hygiene, but a closer scrutiny shows that the year's work has certain characteristics which made it different from all the other 46 which have preceded it.

There was a reduction in the total number of examinations made during 1954. This is due entirely to the curtailment of syphilis serology made necessary by the withdrawal of Federal Funds for this purpose in 1953, which was explained in our 1953 Report. During the first half of 1953 we could make all serological tests for syphilis which were requested. During the second half of 1953 and all of 1954 we could not make serological tests for syphilis for Selective Service—neither could we participate in case finding surveys, but limited our work in this field to the examination of specimens sent in by physicians as an aid to diagnosis and those specimens sent in by local health officers for epidemiological studies. In 1953 we examined 339,501 specimens of blood. In 1954 this number was 292,973. On all these specimens which gave a positive reaction we diluted serum and made titered tests which numbered 23,210. We made serological tests on 2,520 specimens of spinal fluid. Of this number there was sufficient quantity remaining after the serological tests for syphilis were made to do total protein determinations on 2,209.

When funds for serological tests for syphilis were decreased, it was decided that we would decrease our serological tests for syphilis and not jeopardize other activities of the laboratory; consequently, we have been able to in-

crease our serological service in the field of Virus and Rickettsial activity. We now have antigens and are performing complement fixation tests for six of the Neurotropic Virus infections, six for the Viral and Rickettsial infections showing pulmonary involvements, and 3 of the Rickettsial infections with skin manifestations. During the first half of the year we made 410 of these complement tests and during the second half 923, a total of 1,333. Of this number, 47 gave reactions of sufficiently high titer to be significant. Many of these specimens were **paired specimens**, the first being taken in an early stage of the disease and the second being taken some 10 days, two weeks or even longer after the first. When we are supplied with paired specimens of this sort, we can give much more worthwhile information than when only a single specimen is examined. A rise in titer is indicative of a current infection; whereas, a single laboratory test of significant titer can only mean that the patient has in all probability at sometime in the past had an experience with that particular virus or Rickettsia.

A new activity of the Laboratory in the field of serology which has revealed worthwhile information during the current year is **Agglutination Tests for Leptospirosis**. For years we have realized that Weil's Disease of Leptospirosis icterohaemorrhagiae was occurring in the State, but, until we had a human death from a Leptospiral infection, identified as the Canicola variety, we had little information about the prevalence of other types of *Leptospira* in the State. When we began to look for and test for other varieties and sources, we found them widely scattered throughout the State. During the year we have tested 211 specimens of blood from humans; 9 from dogs, 96 from cows; 3 from mules; 6 from goats. Significant reactions were obtained as follows:

<i>Leptospira autumnalis</i> strain	Positive
<i>Leptospira canicola</i> strain	1 human
<i>Leptospira icterohaemorrhagiae</i>	6 dogs, 48 humans, 1 mule
<i>Leptospira pomona</i> strain	7 human, 1 dog
	8 human, 1 mule, 48 cows, 2 goats

We doubt very much if Leptospirosis is a new infection in the State. It has probably been existing for years and has been mistaken in most instances for infectious hepatitis. In the future a physician seeing a patient with jaundice has an addition to make to those conditions considered in a differential diagnosis.

Weil Felix—In 1953 we made Weil Felix tests on 4,692 specimens of blood—32 showing sufficiently high agglutination titers to be important; whereas, in 1954 tests were made on 4,164 specimens with only 20 specimens giving relatively high titers. Whether this decrease is due to early antibiotic treatment or to actual reduction in the prevalence of Rocky Mountain Spotted Fever and Endemic Typhus is problematical, although the reported cases of these two infections have decreased markedly.

Undulant Fever—There has been an increase in the number of Agglutination Tests for Undulant Fever. In 1954 we made 3,086 of these—only 4 of which gave agglutination titers of importance.

Tularemia—During the year we made 2,205 tests with 18 positives, as compared with 2,378 and 32 positives in 1953.

Typhoid Fever—Agglutination tests for typhoid fever decreased from 3,085 in 1953 to 1,323 in 1954. On only 27 of these was the titer sufficiently high to be of any significance, and some of these could have been due to previous experience with typhoid vaccine.

For years we have called attention to the importance of blood culture as an aid to the diagnosis of any bacterial infection in which the organisms occur in the blood stream. Although agglutination tests can be performed more rapidly than cultural procedures, a positive blood culture gives the physician much more important information. In 1953 we made cultures on 2,052 specimens of blood finding the typhoid organism in 12. In 1954 we cultured 2,050 specimens, finding *Salmonella typhi* in 12 and other *Salmonella* in 3. Feces cultures were made on 2,047 in

1953 and on 2,747 in 1954—240 of these revealed either *Salmonella typhi*, other *Salmonella* or *Shigella*. Many of these feces cultures were made in the search for carriers.

Gonorrhea—In 1953 we examined 3,328 urethral smears—while in 1954 we examined 3,411. The number of specimens in which characteristic organisms were found was greater in 1954 than in 1953. In the field of gonococcus cultures we had less than half as many specimens in 1954 as in 1953—145 as compared with 328.

Rabies—This continues to be a very troublesome problem. There was an increase in the number of animal heads sent in for examination in 1954—941 as compared to 796 in 1953. In 1954 there were 168 giving evidence typical of rabies, as compared to 130 in 1953. Of the 168—there were 148 dogs, 10 cats, 5 cattle, 1 goat and 4 foxes. In 128 animals on which we could find no evidence of rabies from microscopic examination, we inoculated mice. In 8 of these—rabies developed in the mice.

Tuberculosis—The years 1953 and 1954 were almost identical so far as the number of specimens of sputum examined microscopically for tuberculosis was concerned—21,025 for 1953 and 20,942 in 1954. The number of cultures made in 1954 almost doubled the number in 1953—4,473, as compared with 2,257 in 1953. In this larger number cultured there were 17 more positive cultures than in 1953—156 as compared to 139.

Diphtheria—In this field work was almost the same for both years—1,484 for 1953 and 1,438 for 1954. In 1953—80 showed diphtheria organisms and only 52 in 1954.

Malaria—We completed another year without finding malaria parasites. There were 284 specimens examined with only the month of April failing to supply specimens.

Sanitary Examination of Water—Our oldest activity showed the largest percentage of gain. In 1953—13,952 specimens were examined—in 1954, 22,460. Most of this increase we could attribute

to the fact that many communities found it necessary to provide emergency water supplies because of the extensive drought during the summer. Also a substantial number of new water supplies were added to our list.

Stream Sanitation activities increased during the second half of the year. During the entire year 1953 we made 1,440 examinations for the Stream Sanitation Committee. The first half of 1954 was about at this rate. However, during the period July 1 to December 31st there were 4,504 examinations made.

Cancer Cytology—The total of 10,239 specimens examined in 1954 was slightly larger than the number examined in 1953—9,787. In 1954—132 specimens were considered to show evidence of cancer with 106 suspected; whereas in 1953 135 were considered to be from cancer patients with 104 suspected.

Intestinal Parasites—The number of specimens examined for intestinal parasites was 18,601 in 1953, and 18,231 in 1954—3,094 or 16.6% of which showed some intestinal parasite in 1953, and 2,749 or 15.2% showing intestinal parasites in 1954. These specimens originated from 70 counties. Hookworm infestation was found in 2,107; Ascaris in 415; Oxyuris in 86; Trichuris in 51; Hookworm-Ascaris in 50; and 50 showed miscellaneous parasites.

Shellfish—Our examinations of shellfish were conducted in our laboratory at Morehead City, which is staffed by one bacteriologist. The total number of 6,933 examinations were made—1,499 of which were for shellfish; 524 were for crab meat; and 4,910 were other examinations, principally water from shellfish habitat.

Approved Laboratories—For Laboratories Approved for the Making of Serological Tests for Syphilis, we have continued our activities, with 168 laboratories now on the approved list.

Milk Laboratories—During the year we inaugurated an approval system for milk laboratories which would be certified as meeting the requirements of the United States Public Health Service for the examination of milk

for interstate shipment.

Biological Products distributed by the laboratory show several significant changes; for instance—

Triple Antigen—Diphtheria and Tetanus Toxoid combined with Pertussis Vaccine, is rapidly replacing the single antigens formerly used to immunize against Pertussis, Diphtheria, and Tetanus. Enough triple antigen for 182,450 injections was distributed in 1954. For the year 1953, the number was 159,630.

Tetanus Toxoid—There is a substantial demand for Tetanus Toxoid, of which we distributed 24,470 injections in 1954.

Diphtheria Toxoid—North Carolina can properly take pride in its immunization program, although we must admit that it is not as good as it should be—nevertheless, it is sufficiently effective to decrease the demand for diphtheria toxoid—only 410 10,000-unit packages and 607 20,000-unit packages were distributed during 1954.

Typhoid Vaccine—We would have had a substantial reduction in 1954 had it not been for emergencies created by Hurricane Hazel in October.

Smallpox Vaccine—Sufficient vaccine was distributed in 1954 to inoculate 173,980 individuals. Since this is substantially in excess of our birth rate, we seem to be maintaining our defense against this loathsome disease.

Immune Serum Globulin—In spite of the fact that there was no great ballyhoo about the value of Immune Serum Globulin in the prevention of poliomyelitis during 1954, we actually distributed more of this product—84,394 cc., and 75,172 in 1953. Most of this was used for the modification of measles and the prevention of infectious hepatitis, both diseases in which Gamma Globulin has demonstrated its value. In fact, several epidemics of infectious hepatitis were apparently brought under control during the year by the judicious use of this biological product.

The State Laboratory of Hygiene Farm is continuing to demonstrate its value, in spite of changes which the

antibiotics have caused in the control of infectious diseases. On this farm we produced all of our own small animals and produced our own rabies vaccine and smallpox vaccine. In addition our large animals produced all of the blood needed in the operation of a modern laboratory.

Although we are operating on a very tight budget, we have not found it necessary to increase the price of any of our supplies or products. We have been able to meet all of the payments which we are obligated to make in retiring the bonds which were issued for the purpose of constructing our present Laboratory Plant. The last of these bonds will be retired during the year 1957.

The year was saddened by the death

of our Mr. Ross Martin, who for 29 years headed an important group of our workers in the Laboratory. For Mr. Martin's devoted and conscientious service, members of our staff hold him in fond remembrance. Countless physicians and their patients throughout the State are unknowingly indebted to Mr. Martin for the honest and capable help which he has given them.

We have had fewer changes in our staff during 1954 than we have had during any similar period in the past 10 or 12 years. This has enabled us to increase the competency of our workers—a desire which is ever before us. Their loyalty and devotion to service is commendable. We look forward to the future in anticipation of our being able to play our part in making North Carolina a better place in which to live.

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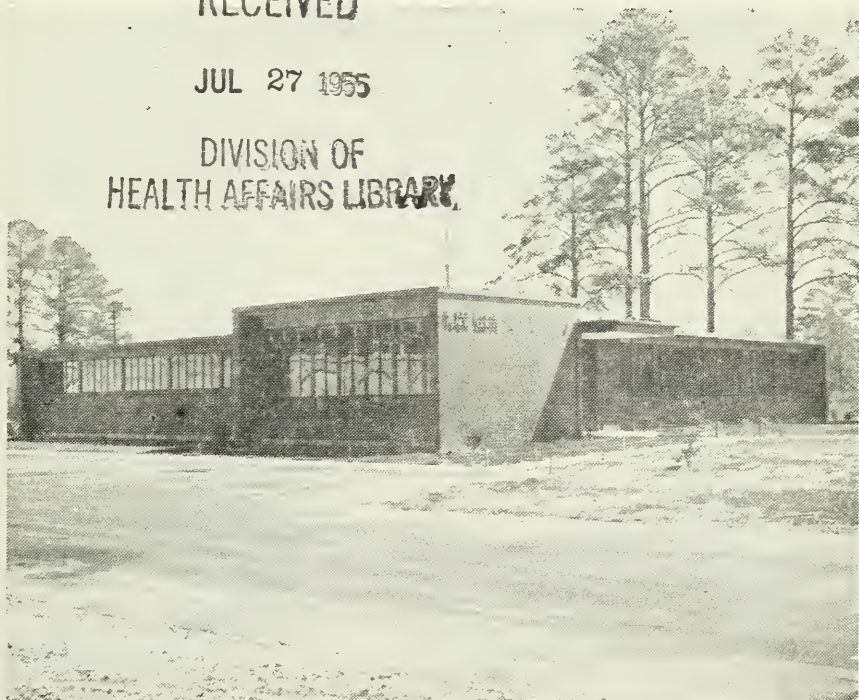
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The State Board of Health publishes monthly **THE HEALTH BULLETIN**, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

Diphtheria	Measles	Residential Sewage
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The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, N. C.

Prenatal Care	Instructions for North Carolina
Prenatal Letters (series of nine monthly letters)	Five and Six Months
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Infant Care	Nine Months to One Year
The Prevention of Infantile Diarrhea	One to Two Years
Breast Feeding	Two to Six Years
Table of Heights and Weights	Midwives
Baby's Daily Schedule	Your Child From One to Six
First Four Months	Your Child From Six to Twelve
	Guiding the Adolescent

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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

MEMORIAL TO DR. JOSEPH A. MORRIS

By ERNEST A. BRANCH, D.D.S.

DEDICATION OF HANCOCK MEMORIAL HEALTH CENTER

June 19, 1955

I deem it a great honor and privilege to pay tribute to one who was your friend and my friend, Dr. Joseph A. Morris. It is particularly fitting that, as this beautiful new Health Center is being dedicated to the service of the people in Granville County, we pause in memory of one who devoted not only his years but also his heart and his mind and his strength to the health and welfare of his people. We know that he is here in spirit this afternoon.

You will recall the thrilling and dramatic story of another great physician, David Livingston and his request that, at his death, his heart be buried in Africa, where it was during his life. In our day and generation, Dr. Morris was a physician and a Christian gentleman whose heart was truly in his work. It will remain among the people whom he loved and served.

Dr. Morris was closely identified with Granville County. He was born here in 1863. Except for the years he spent in pursuing his education—first at the University of North Carolina, from which he graduated in 1887, then at Vanderbilt University, from which he received his degree as Doctor of Medicine, and later a year's postgraduate study of Medicine in New York City—and three years in the practice of Medicine in Texas, Dr. Morris lived out his four-score years and twelve right here.

He was identified not only in years of residence but also in interests and experiences. I am sure that the six years he spent as farm agent brought him closer to the people and gave him a deeper understanding of their needs and problems. When he became County Health Officer in 1919, Granville County and public health in North Carolina were indeed fortunate.

Dr. Morris was diligent, conscientious and painstaking in the performance of his duties. He was a stickler that things should be just right. He expected of himself and of others that all the "I's" should be dotted and all the "T's" crossed.

Though he lived most of his life in this one county, he was in no sense provincial. He was a well read and a learned man. I am sure that you recall, as I do, his delightful use of the English language, both as to vocabulary and enunciation. He was a man who was interested in and who could discuss intelligently many subjects. All of these accomplishments he brought to bear on the chief burden of his heart—the welfare of the people whom he loved dearly.

I am speaking from experience because my association with him in public health was close. I have gone with him throughout this county, from center to circumference, in the schools and out.

We have walked through new ground, scrambled up ditch banks, gone through plowed fields and climbed lot fences in order to talk to county commissioners and school board members about public health or to parents about the health of their children. He knew the importance of presenting the problems of the people and enlisting their cooperation.

One of my favorite public health stories is about my experience in helping Dr. Morris put on an exhibit at a community fair at one of the tobacco warehouses here in Oxford, about 25 years ago. He was particularly disturbed because there had been two deaths from typhoid fever and three from diphtheria, and he wanted to impress on the people just what the Health Department could and should mean to them. We put our heads together and came up with something which we felt sure would make an impression. When the fair opened and the people streamed by the Health Department booth, they were startled to see two coffins for

adults and three for children with a placard saying, "These deaths from typhoid fever and diphtheria in Granville County this year could have been prevented. Consult your Health Department." This may have been a bit morbid and drastic for a fair exhibit, but I do not need to tell you that it got the attention of the people, and Dr. Morris was pleased with the results.

We cannot do justice, in this short discourse, to Dr. Morris, his life of service and his great contribution to society. I have told you nothing that you, his friends and neighbors, did not already know. This gathering today and this very building are evidences of his efforts and accomplishments during his years as County Health Officer.

This portrait of Dr. Joseph A. Morris will serve to remind us all of his unselfish and untiring service to humanity and to inspire us to emulate his example. May we, as he did, "love mercy, do justly, and walk humbly with our God."

OUR HISTORIC HERITAGES IN PUBLIC HEALTH*

By C. C. APPLEWHITE, M.D., M.P.H.

Director, Local Health Division

North Carolina State Board of Health

It is deemed timely and appropriate on this occasion to pause and take stock of the magnificent public health heritage that is inherent in and peculiarly indigenous to the area embraced by this Association. It is one of which all may feel justly proud. It was in the South that Goldberger made his outstanding discoveries with respect to pellagra; Carter made his observation on the extrinsic incubation period of yellow fever by the use of which Walter Reed was able to demonstrate that yellow fever was transmitted by the *Aedes aegypti* mosquito and Carter and LePrince inaugurated a malaria control program which later achieved world-wide acclaim. Here, Stiles demonstrated the presence of hookworm disease which stimulated a south-wide hook-

worm control campaign that produced a profound effect upon the entire public health development in this area. In this region, full-time local health service for a distinctly rural population was inaugurated and systematically developed.

Attention should here be called to the heroic work done by members of the medical profession in securing legislative enactment of measures authorizing the development of state boards of health. This work was done by these medical statesmen often at personal financial sacrifice and without any hope of reward other than the satis-

*Address at 1955 meeting in New Orleans of Southern Branch of the American Public Health Association.

faction of achieving an improvement in the health status of the citizens of this area. It is said in the long ago "there were giants in the land." These physicians who almost singlehandedly waged a successful campaign for creating state boards of health were giants not of brawn but of brain, not of muscle but of mentality, not of brutal courage but of courage born of a definite conviction that the state had a legal and a moral responsibility to protect the health of its citizens. Surely the epochal statement of Sir Winston Churchill that "never was so much owed by so many to so few" is truly applicable to those men for their statesmanlike and heroic conduct. Through their unselfish and devoted service, the broad and firm legal foundation of the modern public health program was laid. As typical representatives of this group of pioneering medical statesmen, the following names are mentioned:

Jerome Cochran of Alabama
Morgan Smith of Arkansas
John P. Wall of Florida
J. G. Thomas of Georgia
L. P. Blackburn of Kentucky
E. H. Barton of Louisiana
J. M. Taylor of Mississippi
T. F. Wood and R. H. Lewis of
North Carolina
J. D. Plunket of Tennessee
James L. Cabell of Virginia
Manning Simons of South Carolina

It will be of particular interest to this section of the Association to know that one of the first types of health work recommended by these pioneers was the enactment of a thorough system of laws for registration of births, deaths and marriages. The following statement taken from the recommendation to one of the state medical associations is significant:

"The registration of births, marriages, and deaths, with the causes of deaths, will afford the means of preserving and collecting accurate vital and mortuary statistics throughout the state, without which all legislation looking to the promotion of public health, and the prevention of disease, must be more or less guess work. Without such statistics, the

field for the operation of a board of health will be very contracted. Registration is a prerequisite for statistics of any sort."

It has taken years of "sweat, blood and tears" to bring the vital records system of the states to their present state of effectiveness. Workers in the field of vital statistics, like all others, owe a debt of gratitude to those past workers who have labored hard and long in this particular field.

As a typical example of the long-range vision, constructive thinking, and statesmanlike attitude of the medical leadership at that time, the following statement made by Dr. J. P. Wall of Florida about 80 years ago is strikingly significant: "The duty of preserving the health and lives of its citizens from the causes of disease is as incumbent on the state as is that of suppressing rapine and murder . . . one has no adequate conception of how much sickness and consequently death are preventable. The time is fast hastening when the preservation of the public health will become one of primary consideration in all enlightened governments." This is a heritage that no public health worker today should ever forget.

Soon after the turn of the century the actual construction of a modern public health program was inaugurated on the firm foundation which has been laid by these earlier pioneers. Fortunately, in practically every state, physicians with outstanding ability were selected as leaders in this particular field. These men were endowed with vision, courage, persistence, determination and ability for intelligent leadership. They were imbued with the spirit of loyalty to the best interest of scientific medicine, actuated by determination to see that the task was effectively done in spite of all obstacles, absolutely immune to the seductive call of politics and motivated by an insatiable desire to render efficient service to humanity. They were men of

"Strong minds, great hearts, true faith, and ready hands;

Men whom the lust of office does

not kill;
Men whom the spoils of office cannot buy;
Men who possess opinions and a will;
Men who have honor; men who will not lie;
Men who can stand before a demagogue
And damn his treacherous flatteries without winking;
Tall men, sun-crowned, who live above the fog
In public duty and in private thinking."

To confirm the outstanding ability of the leadership provided at that time it is only necessary to mention the following names: Fulton of Maryland, Freeman and Williams of Virginia, Rankin and Cooper of North Carolina, Hayne of South Carolina, Harris and Abercrombie of Georgia, Porter of Florida, Sanders and Welch of Alabama, Dowling of Louisiana, Garrison of Arkansas, Leathers of Mississippi, West and Bishop of Tennessee and the McCormicks of Kentucky. Lumsden and Carter of the Public Health Service and Rose and Ferrell of the Rockefeller Foundation served during this period as distinguished consultants to the states in this area. Surely this is a real galaxy of stars in the firmament of public health upon which all may gaze with profit and justified pride and satisfaction. This form of leadership is a wonderful heritage of the highest order.

There could be added to this list the names of others whose record of public health achievements would probably surpass those here mentioned. They, fortunately, are still in public health harness and are keeping the traces taut. For that reason, they are omitted for the present.

It is very significant that practically all of these early leaders in the public health field developed a strikingly similar philosophy with respect to the ways and means of achieving the best results. Early in the period of organization they realized that most public health problems were local in origin and would re-

quire local machinery for their solution. The agency of choice was the local health department manned by personnel who devoted their full time and efforts to the task of preventing disease and promoting a state of good health among the citizens. This plan of organization was at an early stage decided upon to be the one of choice in securing the most effective and lasting public health results. This basically sound philosophy has been persistently followed by the successors of these early leaders, with the result that the area encompassed by this Association is more nearly completely covered by full-time local health service than any similar area in the United States. This plan of organization is a noteworthy heritage and is worthy of emulation in other parts of the country.

Please bear in mind that, in the inauguration of the modern health movement, the leaders had no clearly defined program, no facilities for training personnel other than the school of experience. Funds available for public health purposes were meager, and the attitude of the appropriating agencies and the general public was apathetic and sometimes hostile. The tools available for the construction of the new public health edifice were few and often crude. However, these leaders had faith in the worthiness of the cause that they espoused, faith that the medical profession which had laid the foundation for the structure would give active support through the building era, faith that the general public when supplied with the essential facts would ultimately rally to the support of the cause. They also possessed unbounded enthusiasm because they felt their cause was just and that they were engaged in a life-saving enterprise. With such an inauspicious beginning against apparently insurmountable obstacles, the movement was started and gained momentum and achieved results in communicable disease control that are really startling. The death rates from typhoid fever and diphtheria have been reduced more than 99%; the death rates from pellagra and malaria have

been reduced in excess of 98%; the death rates from dysentery, 86%; tuberculosis death rates have been reduced approximately 80%; and the infant and maternal mortality rates have been reduced in excess of 70% by the continuous application of procedures inaugurated in accordance with the plan set up by these early leaders. As a result of the constant and routine application of sound public health techniques, the present public health structure has been provided with a sound program, strong financial support, good facilities for training personnel and a public attitude which endorses and supports the public health movement with enthusiasm. This is the crowning heritage to which modern public health workers fall heir.

It is true that public health workers, with the enthusiastic cooperation of the medical and allied professions, as well as the general public, have achieved outstanding results in all phases of the routine public health program to which their efforts have been applied. Notwithstanding these excellent results, this is no time for complacency. A review of the vital records will indicate that there are grave problems which will require the combined and consecrated efforts of all agencies keenly interested in the progressive advancement of the human race through the practical application of available scientific data to routine usage. One look at the vital tables of any state will reveal that accidents and the degenerative diseases, such as heart disease, diseases of the blood vessels, cancer, diseases of the kidney, and diabetes, are the real killers. In the past, health departments have devoted little or no attention specifically to these problems. It is honestly felt that the time is at hand when the sights of public health administrators must be raised and focused on these main causes of death. Lack of knowledge with respect to the aetiology and methods of control with respect to

these problems has heretofore been a deterrent to definite and constructive action. Mental health is now generally recognized as one of the gravest problems confronting the whole nation. It is definitely felt that public health workers can make a real contribution to the solution of this problem. What effect, if any, nutrition and endocrinology have in the aetiology of the so-called degenerative diseases and certain diseases of the mind has not yet been definitely determined. It is in this field that the services of well trained young physicians and other technicians are urgently needed in order to develop a sensible and constructive public health program for the solution of these problems. Notwithstanding the lack of a definite program, it is firmly believed by forward-looking public health administrators that much can be done to reduce the morbidity rate and lower the death rate of these so-called degenerative diseases by early detection and early treatment by competent private practitioners of medicine. To achieve worthwhile results in this particular field, teamwork between the public health personnel, the medical and ancillary professions and the general public is absolutely essential. These problems constitute a distinct and worthy challenge to the modern public health workers if they are motivated by the same faith and enthusiasm which characterized the early pioneers in the public health program. It is firmly believed that through a spirit of teamwork a solution to these vexing problems can be found. It is sincerely hoped that today's public health workers will grasp this wonderful opportunity and will apply themselves assiduously to the tasks ahead with the firm conviction and determination that results will crown their efforts. This is your opportunity to make for the future generation of public health workers a real and lasting contribution and add luster to these already resplendent public health heritages.

REMARKS AT THE RURAL HEALTH CONFERENCE IN GREENVILLE, NORTH CAROLINA

By J. STREET BREWER, M.D.
Roseboro, N. C.

I wish to talk to you just a few minutes on the importance of a regular physical check-up examination which should be done on a semi-annual or annual basis according to your age and the state of your health. I would like to call such an examination a health assurance examination. You go to your doctor and have a physical examination and let us say he finds you in good health. Then you feel assured because you have had your examination and the doctor discovered nothing of significance wrong. On the other hand, let us suppose that he does find something wrong. Then the necessary steps to correct the error or whatever disease you have can be instituted immediately without you having to wait for symptoms to warn you that something is wrong. The great value of regular annual physical examination is in the detection of incipient diseases, like tuberculosis and cancer and many forms of heart disease, for example. They may be present and operating in your body many weeks or months before the symptoms become sufficiently alarming to send you to the doctor. In other words, they do not produce pain or distress until a long time after their inception.

I wish to ask each individual in the audience a question. Do you have a family physician? Do you have the condition of your physical body registered anywhere? You have your car registered, your property listed and registered, but what about your own body? The place to have your body registered and the condition of your health noted is in your family or personal physician's office. I wish to emphasize that every individual should

have a personal physician and you should make it your business to go to him at regular intervals for a physical examination. The records in his office will have meaning throughout your lifetime. He will refer to them from time to time as he attempts to keep an accurate accounting of your health. If he refers you to another physician at any time, your history from your record can be easily obtained and save you time and money, as your family physician gives the new doctor the benefit of past visits, treatments, illness, etc. It is oftentimes important in a given case to be able to find out what an x-ray examination, electrocardiogram or blood pressure reading was one or several years ago.

After your examination, don't press your doctor to tell you everything about your condition in detail. Often in the course of the examination the doctor will find variations from normal that are insignificant so far as life and health are concerned, but one not knowing too much about medicine might be inclined to worry over them. Your doctor understands what he sees and finds, and he will tell you if there is anything wrong that you should be concerned about. Just follow his recommendations and don't pester him with too many questions, many of which will be irrelevant. And let me urge you to stay with your family physician. Don't be changing from one doctor to another without good cause. The accumulated knowledge and understanding that a physician acquires about a person after several years of observation and study is oftentimes a very important factor in the management of serious illness.

LATEST CHEMICALS AND PROCEDURES USED IN INSECT AND RODENT CONTROL*

By KENT S. LITTIG

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INTRODUCTION

Insects flourished in countless numbers during the Carboniferous period, long before the first man appeared on earth. Many of the prehistoric insects still exist in much their original form. Unlike the insects, man has advanced mentally, physically and spiritually. His intellect has explored the facets of all the sciences in an effort to see all and to know all. Our present generation has seen tremendous advances to insure our comfort and wellbeing, despite the legions of insect enemies.

You no doubt remember the account in our Bible of the children of Israel toiling in captivity under the Egyptian Pharaohs. They were obliged to make brick without straw for the granaries of Egypt. Some of the granaries have been explored by archeologists, and those strawless bricks have been brought to light. It was also discovered that the granary weevil was a serious pest of grain even in those early times.

The Greeks killed insects with sulfur as early as 1,000 B.C., and records indicate that the Chinese controlled garden insects with arsenic and wine about 900 A.D. Nevertheless, it was not until the 1860's that our first modern insecticide, Paris green, was developed to combat the Colorado potato beetle. Prior to that time, Paris green had been known only as a beautiful but dangerous pigment for oil paints. This discovery stimulated the production of lead arsenate, calcium arsenate and other arsenicals for controlling chewing insects.

Marco Polo mentioned the use of mineral oil for treating camels for

mange caused by the scabies mite. Later, kerosene was used for killing scale insects on citrus trees and for controlling mosquito larvae. Even now the miscible oils, such as Volck, find an important place in the control of scale insects and white flies on ornamentals and fruit trees.

The horseless carriage has evolved into our modern automobile during the past fifty years, the radio and television industries have become big business, and man has learned to split the atom. The development of insecticides and rodenticides has been nearly as meteoric as these other evidences of man's progress.

MODERN INSECTICIDES

Poisons Derived From Plants

Long ago the natives of South American countries were observed to throw pulp of certain plants into streams and ponds to paralyze fish. Humans could eat these fish without suffering ill effects. It was learned that the concoction consisted of the crushed roots and stems of derris, cube and other plants that contained rotenone. Subsequent tests showed that rotenone was very effective in controlling fleas on domestic animals, grubs on the backs of cattle and many garden pests.

Pyrethrum was known for many years as Persian or Dalmatian powder. This powder is made by grinding the flower heads of certain daisies of the chry-

*Presented at the annual meeting of the North Carolina Public Health Association, Raleigh, North Carolina, September 24, 1954.

santhemum family. Pyrethrum is now one of the chief ingredients of aerosol sprays used indoors, although it is too expensive for widespread outdoor use. You may have used Pyrenone,¹ a commercial pyrethrum product containing Pyrethrum extract, plus a synergist. This synergist is piperonyl butoxide, a chemical that does not kill flies by itself but greatly increases the effectiveness of pyrethrum, permitting the use of very low concentrations. Some of the pyrethrum sprays contain only one-tenth of one percent pyrethrins and one percent piperonyl butoxide.

Allethrin is an artificial compound similar in action to the pyrethrins that may be used in various types of space sprays. Allethrin is usually employed with a synergist to increase its potency.

Nicotine is a very poisonous alkaloid derived from the tobacco plant—chiefly from the stems and other waste portions. This insecticide is valuable for controlling plant lice or aphids but is too toxic for use in public health work. Sabadilla and ryania are two other poisons derived from plants. They are not at present considered to be of much value in public health operations.

Chlorinated Hydrocarbons

We are all familiar with chlorine, a chemical used either as a gas or in hypochlorite for destroying bacteria in water. We also are familiar with gasoline and kerosene, two of the hydrocarbons—substances containing only the elements hydrogen and carbon. When one of the hydrocarbons is chlorinated, the resultant chemical is known as a chlorinated hydrocarbon. DDT, chlordane, lindane and many other important insecticides belong to this group. They consist basically of benzene ring compounds in various combinations with chlorine atoms. Therefore, these chemicals are related, and, when an insect develops a resistance to one of the group, it may soon develop a resistance to other chlorinated hydro-

carbons. DDT-resistant house flies, for example, soon become immune to poisoning by lindane.

DDT is one of the few treasures salvaged from the recent world conflict. The production of this important insecticide jumped from nothing to three million pounds a month in less than two years. The incredible two-way action of DDT produced a revolution in insect control practice. Not only would DDT kill insects hit by the spray particles, but it also would cause almost certain death to insects that walked on treated surfaces many months later.

People grew to depend upon DDT as a miracle insecticide and became emotionally involved because of the knowledge that DDT saved thousands and possibly millions of lives in protecting people from malaria, plague, epidemic typhus and other diseases. It was a bitter blow to human credulity when house flies and north Korean lice became resistant to DDT. Certain mosquito species soon developed a resistance to DDT. *Culex tarsalis*, an important western species, became resistant to as much as one thousand times the normal killing concentration of this chemical. People were willing to throw DDT out the window. DDT, however, is still our most practical insecticide for the control of a wide range of insect species. Related compounds, such as methoxychlor, may be used for applications where low toxicity to humans and animals is a requirement.

Chlordane was developed in this country during World War II and remains one of our most valuable insecticides. Chlordane, like DDT and other chlorinated hydrocarbons, may be formulated in emulsions, solutions, suspensions or dusts. Dieldrin and aldrin are related compounds used out of doors chiefly for the control of agricultural insects, although dieldrin is an excellent mosquito and fly larvicide.

Benzene hexachloride was developed for industrial use by French and English workers about 1942. It is a mixture of several isomers, only one of which, the gamma isomer, is highly toxic to insects. Lindane is the 99 percent pure

¹Trade name is used as a means of identifying the product. Its use does not constitute endorsement by the U. S. Public Health Service.

gamma isomer of BHC and has all of the good qualities of the parent compound with only a slight amount of its undesirable musty odor. Gammexane, a British product, is roughly equivalent to lindane. These chemicals kill insects either as stomach poisons, contact poisons or fumigants. They do not have the long residual killing power of DDT.

The Organic Phosphates

The organic phosphates are some of our sharpest weapons in insect control. They are toxic to nearly all insects, ticks and mites and can be prepared in all of the standard formulations. Most of these materials are too toxic to humans and domestic animals to permit extensive usage.

Bladan was developed by German scientists during World War II for killing aphids and mites. American chemists found that tetraethyl pyrophosphate was the chief ingredient of this compound. This chemical is known as TEPP, an ingredient of certain fly baits and agricultural sprays. TEPP is very hazardous for use in the control of public health insects. I would hesitate to recommend this material for fly control. Parathion is a similar material used for agricultural insects but is not considered safe enough for public health work. Excellent control of flies has been attained in tests with parathion-treated cords used in dairy barns and hung in loops from the ceiling to attract flies. These tests are being continued by the Communicable Disease Center Technical Development Laboratories at Savannah, Georgia, in an effort to develop a safe means of using parathion cords.

EPN, another organic phosphate, has found extensive use in California for the control of *Culex tarsalis* larvae. This mosquito is highly resistant to DDT and is a severe pest as well as the chief known vector of encephalitis in the West. EPN is effective at dosages as low as 0.035 pounds per acre. Suitable respirators, neoprene-dipped canvas gloves and other protective clothing are generally necessary for persons mixing and applying materials of high toxicity or whose toxic properties have not yet

been definitely established.

Diazinon is another organic phosphate which is much less toxic to humans than TEPP but is highly toxic to flies and certain other insects. This material should not be used unless approved for public health work by your state health department. We will know more about diazinon after completion of further tests of its toxicity to warm-blooded animals.

Malathion is a chemical you will all know better in the near future. This organic phosphate has a very low toxicity to humans, much like that of DDT but is highly toxic to many species of insects. It will kill DDT-resistant flies readily and may prove invaluable in the control of aphids, mites and many other pests. As a residual spray, malathion is effective for only one to three weeks. It may be used in poisonous baits, and further tests may prove its value in space spraying.

INSECT CONTROL BY CHEMICALS

The Control Of Flies

Normally well-adjusted people often forsake their civilized ways when beset by hordes of insolent house flies. It seems that no insect can be more persistent in attaining its objective than the hungry fly. Fortunately, few other animals have its propensity for browsing in human and animal feces and later visiting pastries and other human foods.

The house fly, *Musca domestica*, became resistant to DDT soon after the introduction of this potent new chemical. The insect overcame each succeeding poison until research workers became frantic and pest-control operators had a disillusioned clientele. Residual sprays, space sprays, poison cords, baits, electric screens and the familiar vaporizers, one by one, proved inadequate to cope with the house fly hordes. Few people thought of the most logical means for fly control and the control of diarrhea-dysentery disease carried by this enemy. We know now that basic fly control consists of isolation of human and animal feces from these two-winged insects, storage of garbage

in fly-tight cans, frequent collection of refuse and suitable incineration or burial of refuse in a sanitary landfill.

Malathion has perhaps brought about a new era in fly control. This chemical is related to deadly TEPP and parathion, chemicals that might play havoc with human life if used indiscriminately. Despite malathion's low toxicity to man, it is highly poisonous to resistant house flies. Malathion is valuable both as a residual spray and as a bait. One to 2.5 percent malathion emulsion or suspension with sugar or syrup may be applied to surfaces where flies congregate, producing a dramatic kill. Malathion, plus sugar or molasses, may be used as a bait on pulverized oyster shells or on surfaces to attract and kill flies. Malathion has produced excellent results in the fog and mist machines and may offer promise for future space spraying activities if approved for this purpose. This chemical remains effective for one to three weeks, after which reapplication is necessary. It will be ineffective in the long run unless it is supplemented by sanitation measures, for an insecticide does not replace sanitation in fly control.

Malathion will have to compete with two other organic phosphates for residual applications. They are chlorthion produced by the Chemagro Company and a similar material (No. 4124) made by the American Cyanamid Company. Whereas malathion will last one to three weeks, chlorthion and 4124 can be expected to last six weeks. These two latter chemicals have not yet been approved for use in dairy barns; malathion, however, has this approval.

Mosquito Control

DDT remains the most important chemical for mosquito control. Light applications of 0.1 to 0.2 of a pound per acre in oil solution will kill most mosquito larvae readily. *Culex tarsalis*, the western vector of encephalitis, has developed an almost complete immunity to DDT but is controlled by EPN at 0.025 of a pound per acre. Some other species, such as *Aedes sollicitans*, the salt-marsh mosquito, and *Aedes dorsalis*, a marsh and rice field mosquito,

have become DDT resistant. Salt-marsh mosquitoes have been controlled by ground applications of EPN at 1/100 of a pound per acre, heptachlor and dieldrin at 1/40 of a pound per acre, or lindane, chlordane or malathion at 1/40 of a pound per acre. Dieldrin applied as an emulsifiable concentrate or as a wettable powder suspension at the rate of one pound per acre has prevented mosquito breeding for more than a year in small landlocked, fresh water ponds. This concentration should not be used where total destruction of fish would be objectionable. This same application to rice fields has controlled *Psorophora* larvae for an entire season. Thus, the outlook is very good for continuation of effective mosquito larviciding by city and county health departments and other agencies.

RODENT CONTROL

Old Methods

Old methods of controlling Norway rats and roof rats still persist in spite of our new knowledge of rodenticides and rat biology. Ferrets, dogs, cats, rifles, slingshots and the man with a stick still engage the wily foe, although no permanent injury to rat populations has been inflicted.

Poisoning, another old method of rat control, is still practiced, but with new materials and techniques. Fortunately, many of the most dangerous rodenticides, such as strychnine, arsenic trioxide, phosphorus paste and thallium sulfate, are falling into disuse. People are learning that rat killing has very temporary benefits, as it eliminates competition and stimulates the survivors to maintain a high population level.

Trapping Rats

Rats may be trapped to obtain blood specimens for laboratory tests for disease. Combing ectoparasites from trapped rats makes it possible to determine the prevalence of rat fleas and the result of DDT dusting programs. Rat trapping may be employed to obtain an estimate as to rat abundance, although rat signs should suffice for this purpose.

General rat trapping programs over large areas are expensive and unpro-

ductive, whereas the use of rodenticides is cheaper and more effective. Traps are useful in killing the last few rats in a building after poisons have brought the infestation down to a low level. Traps are practical as a means for killing very small rat populations and have the advantage over rodenticides of creating no odor problem. Traps are still weapons of choice for killing house mice. These stupid little creatures will enter cage traps readily or will take the bacon bait on a snap trap with utter disregard for their lives. The more crafty rat learns by experience and will avoid baits or traps if it survives the first contact with them.

One-Shot Poisons

Red squill, 1080, Antu, and zinc phosphide are one-shot poisons that will kill a high percentage of the rat population in a building or block in one or two nights. Sometimes 1080 kills every rat in a building during the first night of poisoning, although re-poisoning is usually necessary. Only a highly trained, cautious individual can safely use this deadly poison. Sodium monofluoroacetate (1080) is highly effective but may be recommended only under conditions where it can be used with comparative safety. It is relatively free from objectionable odors.

Most of us will have to remain content to use a 10-percent red squill preparation in cereal, meat or fish in food-handling establishments. This should be followed immediately by baiting with pival or warfarin to kill remaining rats and to prevent future build-ups of rat populations.

Anticoagulant Poisons

Several years ago it was observed in Wisconsin that cattle developed serious hemorrhage after feeding upon decomposed clover. An analysis of the clover by Professor Karl Paul Link showed that it had a high content of dicoumarin. This chemical prevents the coagulation of blood, with a resultant loss of blood through the smaller vessels. Research workers tested dicoumarin against rats in an effort to produce fatal hemorrhage. It was not sufficiently potent to be effective as a rodenti-

cide. Warfarin and pival, two very potent anticoagulants, were subsequently developed by research organizations. These rodenticides are used in greater quantities in the United States than all other rat poisons combined.

Pival is similar to warfarin in its effect upon the rat and in the way it is used. It is more resistant to insect attack and to mold than warfarin but takes somewhat longer to kill rats. Both anticoagulants are marketed in a 0.5 percent technical grade concentration. Warfarin is diluted with cornstarch colored with lake green pigment to identify it as a poison. Anticoagulant bait is prepared by mixing one part of concentrate with 19 parts of freshly ground yellow corn meal. Thus, one pound of warfarin or pival makes 20 pounds of concentrate and two tons of finished bait. Most people are astounded by this extremely high rate of dilution. Some of them make the mistake of using a higher concentration, expecting to get a more rapid kill. This is a waste of material and is absolutely unnecessary, especially in view of the Public Health Service tests that prove a 1:49 dilution to be almost equally as effective as the standard 1:19 dilution. When used at the latter dilution, one pound of pival or warfarin will make five tons of bait.

Pival and warfarin baits are placed in small paper plates or other containers in areas where rat signs are evident. The bait is smoothed with the hand or a knife to leave an even surface. Baits are inspected frequently and observed to see if signs of rat feeding are present. The bait is replenished and maintained until the rat infestation is eliminated. No bait shyness results and rats will feed on the poison even after it begins to take its deadly effect.

Rats and insects have been thorns in our flesh since man's earliest ancestor fought in his cave to keep hunger-crazed rats from his dinner. We all know that rats cannot live without adequate food, water and shelter. Modern man has many advantages over his primitive forefather in combatting rats. Removal of rubbish from our cities,

proper storage of foods and the use of rat-tight garbage cans will destroy the rat. Another bonus is the elimination of filthy flies which depend upon garbage, industrial wastes and other organic matter for their livelihood.

Chemicals are valuable as stop-gap measures and as plugs to close the dam while more fundamental measures are being taken to repair the deficiencies

in our environment. Insecticides and rodenticides at best are two-edged swords that often cut the hand that uses them and destroy the good as well as the bad. Nevertheless, these weapons, when used intelligently, will do much to improve community health during the long period of years in which sanitation standards are being brought to ultimate perfection.

NOTES AND COMMENT

BY THE EDITOR

NONPARALYTIC POLIO DIAGNOSIS NEED NOT BE GUESSWORK

"The diagnosis of nonparalytic poliomyelitis no longer has to be guesswork," a Yale University School of Medicine physician said in the *Journal of the American Medical Association*.

She said six months' experience with a relatively new method illustrates its value in diagnosing polio quickly and in winnowing out illnesses which otherwise might be diagnosed as nonparalytic polio.

The new method, a combination of virus-isolation and antibody-response tests, uses monkey kidney tissue instead of live monkeys for testing fluids from patients.

The "tissue culture" method, first introduced by Dr. John Enders, Boston, in 1949, is more rapid, less cumbersome, and less expensive than the use of live monkeys, the author said.

Diagnosis of nonparalytic polio previously depended much on symptoms and epidemic factor studies. Because of the similarity of these factors in several diseases, specific and rapid polio diagnostic tests have been needed. The "tissue culture" method, providing for virus isolation, lessens this confusion.

The "tissue culture" method was carried out on 9 patients at Grace-New Haven Community Hospital, New Haven, Conn., and was reported by Dr. Mary O. Godenne.

The results of antibody response tests were diagnostically significant in 96

per cent of the patients later proved by virus isolation to have polio, the author said.

She said the rapidity of the method "is an encouraging and a relatively new feature of diagnostic work."

"In 60 per cent of the patients from whom a poliomyelitis virus was obtained, the agent isolated from various sources was recognized and typed within seven days of the time of inoculation of the specimen. By two weeks after inoculation these positive results were available in 88 per cent."

Included in the report were patients with paralytic poliomyelitis, meningitis for which no cause could be found, nonparalytic polio, and encephalitis, an inflammation of the brain.

In 49 patients with paralytic poliomyelitis, a polio virus was isolated in 44 or 90 per cent.

Thirteen or 32 per cent of the 41 patients with meningitis and nonparalytic polio harbored a poliomyelitis virus, while three of the six patients with encephalitis had a polio virus.

In discussing the "tissue culture" method, Dr. Godenne said:

"It has demonstrated that the diagnosis of nonparalytic poliomyelitis no longer has to be guesswork. . . . Of the various tests now available, the isolation (and typing) of poliomyelitis viruses from specimens obtained from suspected cases is the most valuable. Furthermore, it is a test in which the results can now be secured in a matter of days."

ADEQUATE SANITATION CAN CONTROL FLY PROBLEM

Although fly swatters and DDT may be ineffective in controlling flies, "there isn't the slightest need to permit this public health menace to continue in American cities and towns," according to the health educator of the Los Angeles County Health Department.

Writing in Today's Health, published by the American Medical Association, Edward R. Reinig, M.P.H., called for communities and individuals to clean up fly breeding grounds, thus eliminating "one of the greatest disease carriers in history."

Flies have been considered pests since the days of Moses. They have spread typhoid, dysentery, cholera, and other serious maladies.

Methods of combating them have included fly swatters, flypaper, screening, and, finally, during World War II the insecticide DDT. But in 1947 came the news that flies had "met the challenge" by developing a resistance to DDT and other insecticides.

"Sanitation experts all over the world are now convinced that man's victory over the housefly—if it ever occurs—will likely be achieved through some means not yet put into general practice," the author said.

And that means, according to Reinig, is based on the fly's sex life.

This "helicopter loaded with misery" begins its reproductive cycle by laying eggs in some convenient fermenting matter, such as spilled garbage, compost pile, or manure. Under favorable conditions, the eggs hatch into maggots in 48 hours. Five days later they crawl away and bury themselves in hard cocoons in the ground. Adult flies emerge in about four days, force their way to the surface, and fly off in search of food and shelter.

The way to break up this cycle is to eliminate places where flies lay their eggs, such as open dumps, trash piles, and other rotting vegetable and animal matter.

"Good sanitation is the one weapon against which flies cannot develop resistance," Reinig said.

Controlling flies is essentially an individual responsibility, he said, since "one careless person can be the source of enough flies to plague everybody in the block. . . ." No local or state health department is able to perform the job of community fly control alone.

"One of the best ways to do the job on a community-wide basis is to form a Citizen's Fly Control Committee composed of community residents and public officials. . . . In this way the co-ordination of all sanitation and fly control efforts is obtained at great saving to taxpayers," the author said.

"The best time for the organization of a fly control committee in a community is now," he said. "The fly problem exhibits itself during warm weather, but the work and planning that prevent it is a year-round business. You can win encouraging results this season, and your community will be a jump ahead of the enemy next spring."

"Musts" for an adequate community fly control program include daily garbage collection from restaurants and other food establishments; twice-weekly garbage collection in all residential areas; enclosed garbage pickup trucks; landfill type dumps; twice-weekly cleanup and disposal of all waste at poultry houses, hatcheries, slaughter houses, canneries, and similar places.

Others are treatment of private and commercial compost piles with good fumigants, and local ordinances requiring householders and businesses to use nonleaking garbage cans with tight-fitting covers.

If any of these are neglected in a community there probably will be a seasonal fly problem.

Hints for fly control by householders listed by Reinig are:

"Grass cuttings provide an excellent place for flies to breed. Spread cuttings out thinly for drying. Flies need moisture to breed.

"Manure is an excellent fertilizer for lawns but it should be properly composted and dried before using in this way. Dog droppings should be disposed of by burying or in sewer facilities.

"Clean garbage pails thoroughly after each collection. Make sure covers fit

tightly. . . . If bottom of the pail is corroded, liquids will seep into the ground, thus providing a good fly-breeding bed.

"If garbage is buried, it should be covered with at least two feet of earth.

"Bury dead animals and cover them with at least three feet of earth.

"Dishwater and kitchen wastes thrown in the yard create breeding grounds for flies.

"Fruit under trees should be raked up and disposed of as garbage."

A.M.A. COMMITTEE RECOMMENDS ASPIRIN BOX WARNING

All packages containing aspirin or other salicylate compounds should bear a clear warning, "keep out of the reach of children," according to the Committee on Toxicology of the American Medical Association.

Pointing out that oil of wintergreen and aspirin are forms of salicylates most often involved in childhood poisonings, a report adopted by the committee also recommended:

That the label should state "Consult your physician on dosage for children under three years of age."

That individual pills be wrapped in metal or plastic foil that cannot be easily removed by children, or that the container have a top which closes automatically.

That the number of tablets in each container of children's aspirin should be limited.

The committee's report, published in American Medical Association Journal, was originated by the committee on accident prevention of the American Academy of Pediatrics. A similar report was adopted at a recent meeting of representatives of industry, medicine, and pharmacy called by the federal Food and Drug Administration.

Of 113 deaths in the United States known to have been caused by salicylate compounds in 1952, 86 occurred in children under five years of age. Forty-one of these were caused by aspirin, the report said.

"The frequency with which aspirin is involved in childhood poisoning calls

for preventive measures," it said.

Families with small children are urged to use caution in handling salicylate compounds, particularly flavored aspirin.

Secretary of the Committee on Toxicology is Bernard E. Conley, M. Sc., Chicago.

Members of the committee are Justus C. Ward, M. Sc., Washington, D. C., Jerome Trichter, New York, and Drs. Torald Sollmann, chairman, Cleveland; Jay M. Arena, Durham, N. C.; Harvey B. Haag, Richmond, Va.; Irvin Kerlan and Arnold J. Lehman, Washington, D. C., and Edward Press, New York.

INADEQUATE DIET CAUSES LESS ANEMIA THAN WAS EXPECTED

Anemia in persons living in a "backward rural area where the diet is notoriously deficient" appears to be less common than was expected, according to a survey reported in the American Medical Association Journal.

However, the majority of 90 cases of anemia were caused by iron deficiency and inadequate diet.

The survey was conducted by J. J. Kirschenfeld, M. D., and H. H. Tew, M.S., Fort Deposit, Ala.

Most of the patients were from Lowndes County, Ala. The basic industry is farming, and the important products are cotton, corn, peanuts, cattle, and wood.

"The economic status of a large proportion of the population is rather precarious, but improving," the authors said.

"The chief ingredients of the diet, especially in the Negro population, are corn, pork, lard, and vegetables such as potatoes, turnips, field peas, and collards," they said. "Fruit is rare, and beef, eggs, and milk are scarce. . . . To a large extent it is only in the summer months and in the fall that fresh vegetables are available."

Ninety of the 500 patients in the survey showed anemia, a total of 18 per cent. This compares with rates ranging from about 3 to 12 per cent in similar studies conducted in recent years in other areas of the country.

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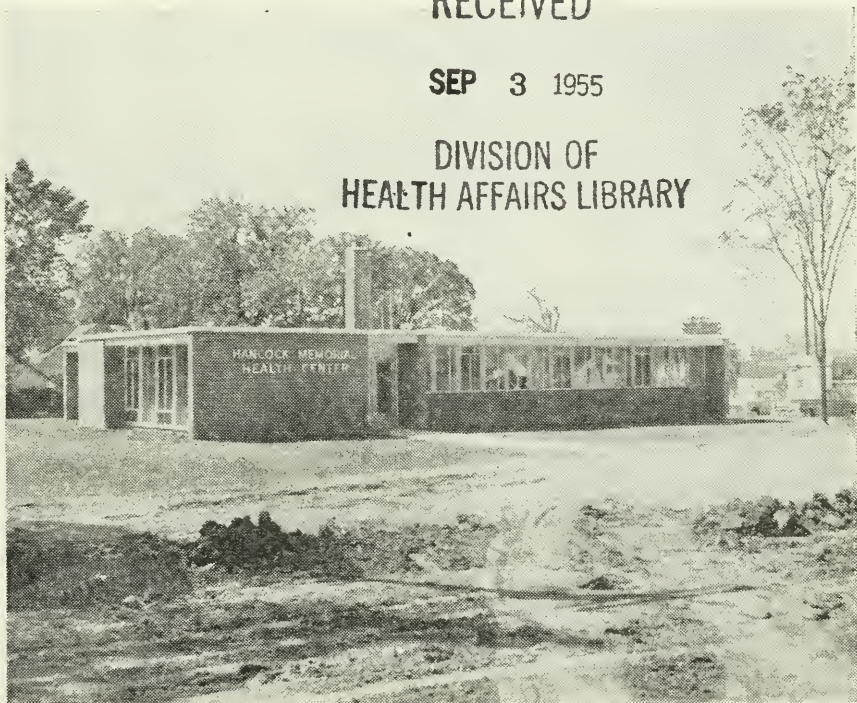
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The State Board of Health publishes monthly **THE HEALTH BULLETIN**, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested.

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The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, N. C.

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First Four Months	Your Child From Six to Twelve
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J. W. R. NORTON, M.D., M.P.H., State Health Officer

JOHN H. HAMILTON, M.D., Editor

MENTAL HEALTH WORKSHOP

By WARFIELD GARSON, M. D.

Division of Epidemiology

State Board of Health, Raleigh, North Carolina

On June 15, 16 and 17 one of the most active and productive gatherings concerning mental hygiene ever organized in the State was held in Chapel Hill.

This unique workshop was primarily the brainchild of the North Carolina Academy of Preventive Medicine and Public Health. The uniqueness of the meeting was many-sided. In the first place, this was perhaps the first gathering of its type in the State where the main spring of action came by a realization of need by common consent of four levels of State leaders in public health rather than being stimulated, as in the past, by outside resources. Further, the sincerity, high spirit, hard work and genuine enthusiasm of the participants marked a new high in dealing with this difficult problem. Although some satisfying conclusions were reached, it should not be assumed that the final panacea of our problems in this field was propounded. Rather, it might be said that a pathway was cleared over which the engendered enthusiasm and stimulation may be guided to advance our mutual ends by continued perseverance and dedication to a better solution of mental health problems that seriously beset some of our citizens.

A short resumé of the background of the meeting should be of interest to many, as it demonstrates the breadth

of concern in the minds of men in the various fields of activity in public health. It also suggests the coming of age of a relatively new but potentially potent state public health organization.

The Academy of Preventive Medicine and Public Health is composed of physicians all of whom are certified Diplomates of the American Board of Preventive Medicine. Almost all are Fellows of the American Public Health Association and Fellows of the American College of Preventive Medicine and Public Health. They come from local rural and city health departments, the laboratory, our universities and the State Board of Health and even include officers of the U. S. Public Health Service who are working in our State. In short, they represent the widest, most talented and experienced group of public health physicians in the State. Coming from such a diversity of activities and places, they have but one "axe to grind." And that is the broader application of a higher quality of public health practice in North Carolina.

In January of this year this organization, by unanimous vote, decided to divide its members into committees to make a study which would form a basis for planning recommended progress in the fields of mental health and chronic diseases.

This was immediately converted into action, and two committees were form-

ed to cover the mental health aspects of the problem. The first committee, under the chairmanship of Dr. Fred G. Pegg, Forsyth County health officer, considered methods useful in determining the needs of the community in reference to services for the prevention or alleviation of mental diseases, including technics and indices useful in this regard. The second committee, under the chairmanship of Dr. Warfield Garson of the Epidemiology Division, State Board of Health, considered planning for a mental health program for a community which would not necessarily require a preliminary survey. Such questions as these were considered: What clinics might be established? What educational methods might be employed? What services might be rendered? How can mental hygiene be incorporated into prevailing public health services?

It was from the first committee, aggressively led by Dr. Pegg and aided and abetted by Dr. Roger Howell of the School of Public Health at Chapel Hill, that ideas for the workshop originated. Dr. John H. Hamilton, Director of the State Laboratory of Hygiene and president of the Academy, wisely guided both committees together in a conjoined endeavor to birth the fully formed workshop. There are those who perhaps are not aware of Dr. Hamilton's rare talents in midwifery in such affairs. The confinement was not without occasional discomfort, but the end result attests to his obstetrical judgment!

The cord was tied and Credé applied when the State Board of Health lent its support to the project through Dr. C. C. Applewhite, Director of the Local Health Division, and Mr. E. S. Haswell, Chief of the Mental Health Section, and Public Health Service funds were made available for the purpose.

With the good offices of Dr. Howell called upon, an outstanding array of psychiatric and mental health talent was lured to participate with us. Among these were Dr. Ernest M. Gruenberg, of the Millbank Foundation, New York

City, Dr. Robert Thomas, Director of the Division of Mental Health, Maryland State Health Department, Dr. John A. Fowler, Director of the Durham, N. C. Child Guidance Clinic, and, last but by no means least, Dr. Roger Howell himself.

The invited group of regular participants included the members of the Academy, representatives of the N. C. Public Health Association Sections of Public Health Nursing, Sanitarians, Clerks and Health Educators, as well as representatives of our mental health clinic staff and a select group of health officers who had expressed special interest in, or were operating, mental hygiene activities as part of their local programs.

A special word of praise is in order for Dr. John Wright, Professor of Public Health Administration at the School of Public Health, and his co-workers for the excellent work on local arrangements, which included making available the University swimming pool, campus parking privileges, use of the Cobb dormitory, the banquet in the Pine Room of the Carolina Inn and other facilities that make for such pleasant meetings that appear to be the rule at Chapel Hill. The opportunity for participants to remain for evening sessions—both scheduled and “bull”—allowed for further mastication, rumination and consolidation of the usually tough work fare. It was in these informal evening get-togethers that people really got to know not only each other, but the fine points of each other's thinking.

It is perhaps difficult, if not impractical, to attempt to report in detail on the various small group and general session business. It may appear anticlimatic to simplify or oversimplify the conclusions of the workshop.

There was one unanimous opinion expressed by all the psychiatrists and mental health consultants. Their feeling was that public health can offer most to the field of mental health by doing more and better public health. This may sound like Gertrude Stein's

"A rose is a rose is a rose"; but when one considers the impact of our preventive programs in prenatal, birth and postnatal injury, other trauma, infection toxins, malnutrition (to mention but a few areas where nervous tissue is protected) and our educational and promotional programs to prepare for predictable and unpredictable life stresses, one can more clearly appreciate the psychiatrists' point of view. This was a refreshing point of view, indeed, from our colleagues in this field. In this respect, they pointed out that in the past forty years two of the most outstanding accomplishments in mental health were the reduction of and control of neurosyphilis and the abolition of pellagra. In effect they say we in public health are their main bulwark in the primary prevention of mental illness and in the promotion of mental health by doing just what we are doing. Only they challenge us to do it better.

In that middle ground of "secondary prevention" in which public health so often administers the program and psychiatry and its team render the service, we both have a challenge. This

area is the counseling and case work and out-patient treatment where we operate hand in hand. The definite therapeutic area of mental hygiene, that of hospital treatment, is the psychiatrists' playground. In this area we can return the challenge they throw to us in the preventive area.

In spite of the fact that our relations with psychiatry were given clarity by the identification of public health's place in the promotional and preventive areas of the mental hygiene field, the health officers were not as completely satisfied as the psychiatrists. Certainly they were not as happy as the psychiatrist who insisted that upon return to his state he was going to put more of his money to work supporting public health nurses and other public health personnel to improve the status of his mental health program. The health officers expressed a need for more categorical services and identification of mental hygiene in their programs.

Further consideration and study in this regard was thus pointed out to the Academy for its future action.

ACCIDENT HAZARDS FOUND ON DAIRY FARMS*

By EDGAR F. SEAGLE, M. S. P. H.

Sanitation Consultant, Accident Prevention Section,

North Carolina State Board of Health

Raleigh, N. C.

Protection and promotion of community health through improvements in the environment have been among the major fields of endeavor of public health agencies for the past half century. It was in the area of environmental sanitation that the initial endeavors of the pioneering health departments were centered during the early days of the public health movement in the United States.

This environmental focus of public

health activities made a significant and lasting impact on the major health problems during the past 20 years. All are familiar with the role sanitation and sanitary engineering played in the control of certain communicable diseases, and such workers can claim a just share of credit for the extension in life expectancy and improvement in the personal hygiene of living which has characterized the twentieth century.

The time has not yet come, however, when sanitation personnel can limit themselves to a mere surveillance pro-

*Read before the Sanitation Section, Southern Branch, A.P.H.A. Meeting, New Orleans, La., May 13, 1955.

gram over conquered problems, for, with the tremendous technological developments of our age, have come new areas of environmental health hazards, any of which rank as equally serious problems as any approached to date. We hear much of the significance of housing to one phase of the health of a community, and additional activities with radiological health hazards, air and water pollution, the effect of noise on health, industrial sanitation, and home and farm accident prevention must be initiated if sanitation programs are to keep pace with the changing patterns of community health and sickness.

It is significant to note that many of these new problems can be approached only after considerable specialized training; however, public health safety specialists have been encouraged over the high degree of correlation between sound sanitation practices and forceful home safety activities. This would suggest that with a minimum of in-service training, existing sanitation staffs can initiate safety activities, the importance of which has been cited by numerous public health authorities.

Accident prevention, then, one of the newest of public health programs, offers a most fertile tool by which to further sanitation. Sanitarians are not as much concerned with why people choose to make improvements in sanitation as they are that they make them. If a person changes some hazardous environmental condition in order to eliminate an accident hazard and it favorably alters some condition affecting the surrounding sanitation, then the ultimate end is the same as if the correction had been made solely to improve sanitation. The importance of this observation is that most of the time people will be motivated to make necessary changes if they can be shown that it might eliminate hazards to them personally. Everyone is more concerned with things that touch him directly rather than how his end product, for example, may effect other people.

To illustrate how accident preven-

tion can play an important role in the improvement of sanitation, let's consider some accident-producing environmental conditions on the dairy farm. First of all, one is likely to find uncovered holes or slick surfaces on graded levels around the barn that may result in cows' slipping and injuring their udders. The concrete slab leading into the milking barn is a good example and is notorious for getting worn down and slick. These falls may result in mastitis. They not only mean an economic loss to the farmer but may also mean illness for persons drinking the milk. However, the farmer or employee himself may fall and break a leg in these same holes or ditches or on the same slick surfaces. Therefore, if some accident prevention work is done with an eye toward protecting the farmer, it could indirectly improve his milk product. How closely one can measure this type of thing as preventing sickness and disability remains to be seen; however, it seems logical to believe that accident prevention and sanitation show a marked correlation. The similarity is obvious when thinking of things like discarded pit privies. If these are properly filled in, that lessens the possibility of spreading disease; however, it also keeps people from accidentally falling into them.

When thinking of insect and rodent control on the dairy farm, the State Board of Health in North Carolina is furthering one project which, although designed to prevent mosquito breeding, also prevents many home accidents. This is the inspection of every home and farm pond and stressing that all tree stumps and other obstructions be completely cleared from the pond bed. The regulation only requires these stumps to be a certain number of inches below the fluctuating water level so as to prevent vegetation from accumulating around them, with resultant mosquito breeding. However, emphasis is being placed on complete clearing of the pond bed. This is using a double-barrel gun, inasmuch as it does accomplish the primary purpose

but also keeps children as well as adults from diving in the pond and hitting their heads on these obstructions. On some of the larger ponds it prevents small boats from being overturned by ramming these stumps. The point to stress again is that if the farmer is reluctant to remove these hazards from the standpoint of mosquito breeding he may come around when he thinks that some member of his family may be seriously injured or even killed as a result of these hazards. It is simply another approach or another road to get to the same place. This approach should give the person you are dealing with the idea that you are interested in him personally, and this always has a good end result.

The next concern might be construction of milking barns, milk rooms and other dairy farm buildings. Sanitarians have long been concerned with the construction of floor and wall surfaces from the standpoint of keeping them clean. They should be of smooth, washable, nonabsorbent material, free from cracks, crevices and open joints. This type of surface certainly contributes to better cleaning and consequently better sanitary conditions. It also contributes to safer walking and moving around of personnel. This could also be another "selling" point for the sanitarian to use in getting his sanitation program across; bring out the fact that things like floor surfaces, if properly constructed, will contribute not only to better sanitation but also to more safety from accidents for the farmer. This is a prime example of how accident prevention can be integrated into an already existing program and also illustrates that sanitarians have actually been doing some accident prevention all along but without realizing what an important tool it is in furthering other programs. This is something that affects the milk handler directly—it is closer to him than contaminating the milk that someone else is going to drink. This is something for *his* safety, not just the safety of the public that he serves. The ultimate end is that, for whatever

reason he changes these environmental conditions to safer and better ones, he is improving sanitation and preventing accidents.

Regulations also specify that there must be adequate lighting and ventilation throughout. Here again they were primarily set up for sanitary reasons; that is, if you can see better, you can clean up better. Another important reason for good lighting, though, is to prevent accidents. Poorly lighted cellar or back stairs need no comment other than to recognize their high potential as a source of falls resulting in serious disabilities and even death. Good lighting is certainly needed to properly inspect pieces of equipment when they are being washed and cleaned. However, good lighting while one is cutting, mixing or using electric motors and other apparatus in the farm buildings may prevent a cut finger or hand or the loss of one by getting it caught in a piece of equipment because the moving parts could not be clearly seen. Here again bringing out the accident prevention concept to the farmer is another prong with which to improve sanitation.

One could also mention here storage room space around the milking barn. Proper storage and use of poisonous chemicals is something to watch for all over the farm; however, sometimes chemicals that are harmful to milk quality are found dangerously close to the milk, in both the milk room and milking parlor. Frequently these are found sitting around the rim of the milk cooler or on a shelf close to the strainer or sediment pads. This is obviously a bad practice. However, if it can be prevented by using a cabinet with a good lock on it, two purposes are served. The operator is helping to protect the quality of milk and also preventing children and other members of the farm family from getting those chemicals by mistake. In regard to miscellaneous storage rooms, it is recommended that articles be stored in a manner that will facilitate cleaning. If this recommendation is carried out, things are certain to be more in

order than if they were strewn on the floor in a random manner, and consequently the possibility of tripping and falling over something is reduced. Again sanitation and accident prevention are going hand in hand; however, one may get more results if he approaches proper storage from the standpoint of preventing injury to the operator rather than telling him he can clean up better. Certainly both points should be brought out in the conversation.

Practically all of these same examples could equally as well be applied to restaurants, meat markets, abattoirs and all the other food handling establishments subject to inspection by the health department. I could name specific examples for all of these places, and I am sure you could also by merely giving thought to this helpful approach. Accident prevention work for the sake of it alone is a most worthwhile endeavor. In North Carolina studies have shown that just on the farm, in the home and resident institutions, there were 827 accidental deaths in 1952, 739 in 1953 and 817 in 1954. The 1954 figures are not yet com-

plete; that is, more reports are still coming in. This is a rate of approximately two deaths per day. It has been estimated that for each of these fatal accidents there are 150 accidental injuries resulting in disability for twenty-four hours or longer and that four of these are permanent disabilities. Any accident prevention activity should be preceded by an in-service training program for sanitarians, and a check list of home hazards should be agreed upon and approved. Armed with this knowledge, the sanitarian could then discuss such situations on the spot and make recommendations for the most practical means of elimination or correction. This type of program should spread to all categories of public health personnel who make home and other visits as part of their daily duties. Truly accidents are a major problem, and, when accident prevention can be so easily combined with another important phase of public health, that of sanitation, where both have a strong tendency to promote the other it provides sanitarians with a wonderful opportunity to make their work even more valuable and satisfying.

NOTES AND COMMENT

By THE EDITOR

NEWBURGH'S 10 YEAR FLUORIDATION*

The Newburgh-Kingston Fluoridation Study in New York celebrated its 10th anniversary on April 21 in ceremonies in which it was reported that "reports confirm earlier findings that water fluoridation has no demonstrable systemic or developmental effect on children except for the known dental benefits of reduction in tooth decay." Addresses were made by three staff members of the New York State Department of Health including the director of Bureau of Dental Health, David B. Ast, D.D.S., and by Samuel

Z. Levine, M.D., pediatrician-in-chief, New York Hospital, and a member of the State Health Department's Technical Advisory Committee on Fluoridation of Water Supplies.

As a part of the study, the city authorities of Newburgh approved the fluoridation of the city water supply while those of Kingston with a fluoride-deficient water supply agreed to participate as a control area. For the six- and seven-year-old Newburgh children, who had consumed fluoridated water all their lives, the decayed, missing, and filled rate for permanent teeth was 75 per cent and 68 per cent lower than for those for comparable Kingston children.

*American Journal of Public Health, V. 45, P. 861.

The total cost of the study including the cost of fluoridating Newburgh's water supply has been about \$300,000 or about \$30,000 annually. Said Morton Levin, M. D., making one of the day's speeches, "A reduction in dental caries of approximately two-thirds among children and the adults of the future makes the cost of this study and the costs of fluoridating water supplies a truly economical practice."

CARELESS HANDLING MAKES CANDY DRUGS DANGEROUS

Carelessness about reading labels and storing medicine out of reach are contributing to an apparent increase in preschool-age illnesses and deaths from overdoses of candy-flavored medicines.

The warning against mishandling of potentially dangerous drugs was made today by the American Medical Association's Committee on Toxicology, in a report in the *Journal of the A.M.A.*

Committee Secretary Bernard E. Conley said that among preschool-age children, the group in which accidental poisonings is most frequent, "drugs are responsible for 33 per cent of the fatal poisonings." Children's death rates "from the ingestion of poisons are four times higher in the United States than in England, even though over-all death rates for both countries are generally comparable," he said.

Most poisoning accidents are caused by "ignorance, carelessness" and unsafe storage, the report said. Many of these products "that are packaged and flavored to look like candy are in reality potent drugs, some of which can be dangerous with overdoses."

Figures show that since candied aspirin became available over-the-counter in 1948, deaths from aspirin among children under 5 years old rose 500 per cent above pre-war levels. There were 31 deaths of this kind in 1951, compared to a pre-war average of 6.

While the aspirin poisoning reports are not "conclusive evidence," they "strongly suggest that flavored aspirin has contributed to an increase in accidental poisoning disproportionate to its

availability," the report said.

Another indication of danger for young children is in the unusually high rate of preschool-age poisonings from swallowing oil of wintergreen, commonly used in liniments. Sales of this substance have remained fairly level. So have fatalities from the oil among most age groups. But among preschool-age children the mortality rate from oil of wintergreen is 20 to 25 times greater than among the remainder of the population. This may be due partly to its "tempting odor," which resembles that of some chewing gum, candy, and soft drinks, the report said.

Labels that say "keep out of the reach of children" and special safety devices, such as enclosing pills in strong plastic film or putting strong spring caps on containers, might make drugs harder for children to get.

But safety devices are not a basic answer to the problem, the report said. Adults must learn to pay attention to labels and danger signals.

Advertising that "states or implies a degree of safety not associated with the drug" is "a basic cause of carelessness and negligence among users," the report said. "Such advertising encourages an easy familiarity" which too often generates carelessness.

"More often than not this carelessness is the result of a cultivated ignorance of the dangerous capacities of a drug rather than an inherent negligence on the part of the user," the committee said. "Recognition of this fact will be a major step toward improving the safe use of common household medicaments."

PHYSICIAN DESCRIBES "LITTLE STROKES"

One of the commonest diseases of man is that in which, over the course of 10 or 20 years, a person is "gradually pulled down" by dozens of "little strokes." Dr. Walter C. Alvarez said in the *Journal of the American Medical Association* that the "little strokes" come from plugging of small arteries in the brain, and result in damage to

brain tissue from the cutting off of circulation.

Onset of the disease possibly can be delayed by keeping the weight down and reducing the amount of cholesterol (a fat-like substance) in the diet. People can recover after a little stroke, and some may go for 10 or 15 years in good health before having another.

An important factor is understanding on the part of the family, employers, or partners. Dr. Alvarez said, since the disease can cause major changes in personality and ability.

The "little strokes" are not easy to diagnose, especially since the patient may confuse his symptoms with other diseases, such as ulcers or gallstones, and may neglect to tell his physician about an important incident which would reveal a history of "little strokes." However, he said the disease might be suspected whenever:

"(1) A man or woman past 38 or so has a mental and nervous disability that is out of all proportion to the little indigestion, abdominal, or thoracic (chest) pain complained of, (2) a nervous breakdown or a queer group of symptoms come suddenly on a certain day, and (3) one learns from the family that after a dizzy spell, blackout, or perhaps a fall, there came decided changes in character and perhaps an inability to work."

The "little stroke" may go unnoticed because the thrombosis (or "plugging" of an artery) in the brain may cause only a small shock, and may occur unknown during sleep. Frequently symptoms do not appear for some time afterward. A significant sign is a sudden change in character, such as that when "a previously kind, affectionate, gentle husband suddenly began to explode in anger over almost nothing."

Loss of work ability may be a sign which puzzles the patient and his employer, since even a complete physical checkup may reveal no apparent cause. Fear of being alone, loss of old interests and joy in life, visual trouble, pain, arthritis, "acute indigestion," burning and bad taste in the mouth,

changes in writing, speaking, and ability to swallow, and falling down steps may be indications of "little strokes." Dr. Alvarez said he can make a diagnosis "as the man gets up out of the chair in the waiting room; he is so clumsy about it. I often make the diagnosis when I see how dull the man looks and how much older he is than his chronologic age."

There are several other symptoms of the disease, but the physician needs information from the patient and his family about such incidents as falls or character change. Then the family's understanding is needed so they can be "more forgiving of the patient's cantankerousness or constant complaining."

"In many cases a man's employers or partners need to know quickly that he is never likely to work again. Then they can retire him with a pension," he said. "Often, when a man owns his own business, the family ought to know that he is not likely ever to be of any use in the office. They must then decide quickly what is to be done with the business and the people who work there."

Dr. Alvarez pointed out that there are helpful methods of treatment in some cases and that one "little stroke" does not necessarily result in disability. He said he "can tell patients that I have seen many persons go for 10 to 15 years in good health before another little stroke occurred."

He added that a patient "need not fear that a third stroke will kill; this is only an old folklore with no truth in it."

"I tell my patients of some of the many persons I have seen who, after a stroke, became remarkably well," he said. "I may tell of Pasteur who, for 27 years after his big stroke, did much of his best work. Interestingly, his barber told a friend of mine, in Paris, that through the years Pasteur must have had 50 little strokes."

LOW-FAT DIET MAY PREVENT CORONARY DISEASE PAIN

A low-fat diet may be useful in help-

ing to prevent angina pectoris, one of the most painful effects of coronary disease, two Philadelphia physicians said in the *Journal of the American Medical Association*.

Angina pectoris, a severe pain in the chest, which carries with it a feeling of suffocation and impending death, is usually brought on by effort or excitement.

Anginal pain following meals has been attributed to the increased heart work during digestion or to heart artery constriction resulting from a distended stomach. However, the two Philadelphia doctors suggested that the cause may be too much fat in the meal.

Fourteen patients with coronary disease at the Hospital of the University of Pennsylvania were given a fatty meal consisting of heavy cream, flavored with cocoa and synthetic sweetening.

Six patients had a total of 14 severe attacks of angina pectoris from three to five hours after eating. Two other patients developed relatively mild and short attacks about five hours after eating. The patients said the discomfort was identical to that of effort-produced angina.

Blood samples taken at intervals after the meal showed a steady rise in fat content, with the highest point reached about the time of the attack.

This slowly rising and prolonged fat concentration might explain why angina pectoris may occur in certain individuals after a certain meal of the day, the doctors said. It also might be partly responsible for angina decubitus, chest pain occurring when the patient is lying down, they said.

Other tests showed changes in heart rate and a temporary deficiency of blood in the myocardium (heart muscle) during the attack. The doctors said that high fat concentrations, bringing about such a deficiency during the attack, could have a bad effect on the myocardium in persons whose circulation already is impaired by coronary disease.

This is another good reason for

giving a low-fat diet to patients with angina pectoris, the doctors concluded.

Making the survey were Dr. Peter T. Kuo, Hospital of the University of Pennsylvania, and Dr. Claude R. Joyner, Jr., National Heart Institute of the National Institutes of Health.

ATOMIC TEST PROGRAM GIVES MAXIMUM PUBLIC SAFETY

Safety measures at the Nevada Atomic test site have reduced hazards to the public to a minimum according to Gordon M. Dunning of the Atomic Energy Commission's Division of Biology and Medicine, Washington.

After five major tests no one has incurred radiation exposure off the site that may be considered "anywhere near hazardous."

There have been no known cases of serious eye damage from light effects nor any reported injury to persons from shock waves.

Carrying out an extensive program of warnings before tests and checks after tests are 100 full time employees of the Atomic Energy Commission. In addition, many persons participate on a part-time basis throughout the United States.

The basic consideration for the public's safety was shown in the selection of the test site. It covers an area of 600 square miles, with an adjacent U. S. Air Force gunnery range of 4,000 square miles. These are surrounded by "wide expanses of sparsely populated land."

Preceding a test, a "warning circle" is set up and all aircraft are warned by the Civil Aeronautics Administration to remain out of the circle. Roadblocks are established on major highways in the area to alert motorists to the approaching blast and flash of light.

The AEC and U.S. Public Health Service have cooperated in establishing a liaison program with residents in surrounding areas. Liaison men live in each of 12 zones. Their duties include becoming so much a part of the neighborhood that residents would respect their decisions and seek their

advice if needed. The men also monitor radioactivity-measuring equipment following the tests.

After each blast, monitoring equipment at the site, in nearby communities, and on mobile equipment measures the radioactive fall-out.

Airplanes track the clouds and plot the fall-out pattern on the ground.

Ninety U.S. Weather Bureau stations throughout the United States collect fall-out data, as do 10 AEC installations in different parts of the country.

Contamination of water and air in the surrounding area was found to be relatively small after each blast, Dunning said.

There have been no reported cases of people receiving radiation burns off the site. In 1952 some cows which were 15 to 20 miles from "ground zero" received some burns, as did some horses in 1953.

Damage from shock waves in nearby communities has totaled \$44,300 from several blasts. If it appears that there may be slight damage from shock waves, because of weather conditions, residents are warned to open windows and doors in their homes to help equalize the pressure.

PHYSICIAN DOUBTS EXISTENCE OF "ULCER PERSONALITY"

Doubt as to "the nature or even the existence of a specific ulcer personality" was expressed by a Cleveland physician.

It has become common in the last few years for doctors and the public to refer to certain persons as being of the "ulcer type." Articles and even a book have been written on the subject.

Yet investigators cannot agree on what goes to make up the "peptic ulcer personality," Dr. Harold P. Roth said in the Archives of Internal Medicine.

He found that a number of different personalities were described as typical in various studies on the topic. "There was no whole personality or feature of personality that was agreed upon by as many as a third of the investigators," he said.

Personality traits most frequently mentioned were drive, conscientiousness, and anxiety. "Although other traits were described, the statements about most of them were contradictory," he said.

Some authors suggested that ulcer patients had a specific type of conflict. But they did not always agree on the nature of the conflict nor whether the conflict was associated with a specific personality type.

The conflict most frequently reported was between feelings of passivity (desire to be loved and taken care of) and feelings of activity and independence. Because this same conflict is seen in persons without ulcers, "we must know how often this conflict can be found in the general population before we can decide how significant is the fact that it is found in ulcer patients," Dr. Roth said.

"We cannot say whether the fact that a number of investigators described the same personality features is significant, for this may be due to a defect in their techniques," he said.

In half of the studies no method of study was outlined. Some were based on interviews, psychoanalysis, and psychological testing.

No distinction was made between patients with gastric ulcer and those with duodenal ulcer nor between male and female patients in many of the studies. Yet investigators who studied these groups separately found there were differences in personality.

"Conclusions about the ulcer personality in the general population have been drawn from studies of samples that were not representative," Dr. Roth said.

"Usually the author did not report how often he found a given characteristic, such as ambition, in his patients . . . Generally he reported his conclusions, not his data," he said.

"An entirely satisfactory" method for evaluating personality has not been developed, nor has a method for comparing ulcer patients with ulcer-free persons, Dr. Roth said.

DOGS SOMETIMES TRANSMIT PARASITES TO HUMANS

"Man's best friend," the dog, may sometimes—accidentally—be his health enemy.

Occasionally a dog may transmit an infectious parasite to man, two physician consultants said in answer to a query from another physician in the *Journal of the American Medical Association*.

However, they said the few cases of infection from dog to man probably could be prevented by cleanliness, defleaing the dog, and other easy methods.

Some of the parasites of dogs which may infect man are fleas, ticks, tapeworms, and hookworms, one type of which causes a skin infection called "creeping eruption" in the southeastern United States. Dogs with mange may give their handlers a skin infection.

Sometimes dogs and men may have the same infection but in these cases it isn't the dogs' fault. It just happens that they are infected by the same parasites—which in turn came from fleas, pigs, or fish.

In fact, the physicians said, sometimes when dog infects man, the parasite of the dog came from the man in the first place.

EASTER CHICKS CARRY STOMACH INFECTION

An unusual outbreak of a stomach and intestinal infection caught from Easter chicks is reported in the *Journal of the American Medical Association*.

The infection, caused by a bacterium, *Salmonella typhimurium*, is common in chicks and other poultry. It is being more frequently reported among humans, according to Arnold S. Anderson, M.D., Henry Bauer, Ph.D., and C. B. Nelson, M.D., Minneapolis. They said the reported outbreak indicates "a potential hazard" in distributing chicks or other small poultry as household pets.

Twelve cases of salmonellosis in 11

households in Hennepin County, Minn., were definitely traced to chicks which were distributed at Easter, 1954, by two food stores.

The chicks were obtained from a hatchery which had no record of infection. However, while at the stores, the chicks were crowded and were fed cereal from broken packages.

No attempt was made to question all persons who received the chicks, but 17 other persons in the 11 households showed symptoms and probably had cases of salmonellosis.

The illness began from four to six days after chicks were taken home. The symptoms, including fever, watery diarrhea, blood in the stools, and vomiting, came on suddenly and lasted from one to five days. Treatment consisted of the usual antidiarrheal drugs and diet and antibiotics.

The 12 patients ranged in age from four months to 35 years. Six were infants under one year of age.

The infection is usually mild in children over the age of two and in adults, but so severe in infants less than a year old that medical help is necessary, the doctors said.

The authors explained how tiny infants, who live "in scrupulously clean cribs and seldom have anything go into their mouths that is not sterilized," get salmonellosis.

The answer is in the behavior of the two to five-year-old, who handles his pets and then touches the mouth of his baby brother or sister. "It may be mere chance, but we suspect it is not," that every patient under one year had a brother or sister between the ages of two and five, the authors said.

TWO WORLD MEDICAL GROUPS DISCUSSED

Since health is of importance to everyone in the world, international cooperation in health and medicine may smooth the way for cooperation in more controversial spheres, three physicians said today.

Two organizations which work toward world health, understanding, and peace—the World Medical Association

and the World Health Organization—are described in the Journal of the American Medical Association.

Drs. Harold S. Diehl, Minneapolis, Leonard W. Larson, Bismarck, N.D., and Franklin D. Murphy, Lawrence, Kan., said the two groups are “a team that is making one of the greatest contributions of our time to the improvement of mankind—a must for the prevention of the spread of communism.”

An accompanying editorial pointed out the importance of the organizations as a means of exchanging information.

“Each country, of course, has its own problems, but there are many aspects of the control of disease and the providing of medical care that should be viewed internationally,” the editorial said. “Sometimes the view prevailing in one country is helpful when disseminated elsewhere Such value is readily apparent to everyone.

“Not so apparent at times is the protection a country receives when its health professions can benefit from mistakes made elsewhere.”

Free exchange of information not only can show a country how to control malaria and other diseases, but can point to the “inequities of some governmentally inspired schemes that may not bring health, happiness, and freedom but instead shackles and misery,” the editorial said.

The World Medical Association, a professional organization of physicians, developed an International Code of Medical Ethics, sponsored the first World Congress on Medical Education, and now is working in the field of world occupational health.

The World Health Organization, with 84 member nations, is within the general orbit of the United Nations, but administered separately. It has compiled and distributed information on many phases of health and disease; led in the control of malaria and yaws, and assisted in training thousands of persons from countries without health training facilities.

The World Health Organization is valuable to the U.S. “both as an arm

of foreign policy of our government and as a contributor to our domestic health,” the article said.

Both organizations have worked together, collaborating on projects and exchanging representatives. “It is essential that these organizations continue to cooperate in order to assure the greatest possible competence,” the article said.

It said the individual physician can help “in developing understanding within his own community of the importance of the development of public health services in underdeveloped areas of the world as a barrier to the spread of communism.”

CHILD'S STOMACH TROUBLE MAY BE EMOTIONAL

Children have stomach ulcers and other internal disorders caused by emotional factors just as adults do, according to two staff members of the Children's Mercy Hospital, Kansas City, Mo.

Emotions “bottled up” may express themselves by appearing as real physical illnesses—peptic ulcer, ulcerative colitis (chronic ulceration in the colon), “stomach cramps,” “knots in my stomach,” and a variety of other ailments.

Many cases of infantile colic also are thought to be largely emotional in origin, A. H. Chapman, M.D., and Dorothy G. Loeb, M.A., said in the American Journal of Diseases of Children.

Sometimes such disorders can be cleared up fairly rapidly through a talk between the parents and the doctor. “A small amount of extra time” to talk to the parents is often the best treatment the physician can give, they said.

Many of these illnesses begin because children and infants fail to receive sufficient love or are surrounded by an atmosphere of irritability, impatience, and anger.

“Infantile colic” frequently develops in infants whose mothers are impatient and cross. The infant “senses the absence of secure, affectionate mother-

ing, which is his most crucial need," the authors said.

Sometimes he expresses his sense of insecurity by becoming "colicky." More affectionate and patient mothering is often the best remedy, the authors said.

Peptic ulcers may develop in children whose needs for security and love were not met in infancy.

Children who have ulcerative colitis often are depressed and unable to express their angry feelings. These children also may not have had enough affection from their mothers. It has been estimated that about 10 per cent of all adult ulcerative colitis begins in childhood.

Once the doctor recognizes the emotional basis of these illnesses, he can attempt to guide the parents in their approach to the child's problem and illness. The physician not only can give medical treatment, but can make specific suggestions for the behavior of the child and his parents.

PHYSICIAN LICENSING REACHES NEW HIGH

The number of new physicians added to the nation's physician population reached a record high in 1954, according to figures released by the American Medical Association Council on Medical Education and Hospitals.

Boards authorized to license physicians to practice gave 15,029 licenses during the year, an increase of 595 over the previous year. Excluding duplications of candidates examined in more than one state, the actual total of new license holders reached 7,917.

The report said that deducting the 3,667 physician deaths in 1954, there remained 4,250 new physicians in practice since the beginning of the year. This was 641 more physicians than were added to the population in 1953.

The council's report appeared in the *Journal of the A.M.A.* It said that the physician population increase occurred in 31 states. The licenses issued brought to 222,773 the total of licenses granted since 1935.

Registration of physicians (including persons licensed in 1954 who took

exams in previous years) reached a level exceeded only by that of 1946, the all-time record year. From 1946 to 1952, the numbers registered decreased annually and then took an upswing. However, throughout all these years the totals were higher than in the pre-World War II years.

The report also showed that failures of candidates to pass license exams remained low. Only 4.2 per cent of the 5,999 American medical school graduates taking exams last year failed to get licenses, and 4.8 per cent of the 126 Canadians failed. The largest part of the failures occurred among graduates of foreign faculties, schools not approved by the council, and schools of osteopathy. The total failure rate of 12.7 compares to the previous low of 5.7 in 1930 and the previous high of 21.7 in 1908.

The 15,029 licenses granted included a number given on the basis of interstate reciprocity and other qualifications. Licenses by examination actually were given to 6,827 persons. These candidates came from 73 medical schools in this country and 11 in Canada. The rest were from foreign schools, unapproved schools, and schools of osteopathy.

The largest number of new license holders came from California, which licensed 1,975 physicians. Next was New York with 1,498, followed by Illinois, Ohio, Pennsylvania, and Texas with over 500 each; Delaware, Idaho, Nevada, North and South Dakota, and Vermont with less than 50 each. The smallest number was 24 in Wyoming.

The largest number of licenses granted to graduates of one school was the 207 given to graduates of the University of Illinois College of Medicine. Largest number of private school graduates licensed was 175 from Tulane University. Twenty-six schools had more than 100 licenses. Thirteen schools turned out candidate groups without a single failure in board examinations.

These were Stanford University, Georgetown University, Chicago Medical School, State University of Iowa, Wayne University, Albany Medical Col-

lege, and the Universities of Buffalo, Rochester, North Carolina, Utah, Washington, Southern California, and Colorado.

Foreign school graduates, including both American and foreign born persons, took 1,642 exams in 1954, with 943 of the candidates passing. The actual increase to physician population was 772, bringing the total of new foreign-trained physicians to 2,784 licensed in the past five years.

PHYSICIAN WARNS AGAINST VACATION DRIVING DANGER

Beginning of vacation time brings a warning against long-distance, non-stop driving from a Washington, D. C. physician.

Dr. Carl J. Potthoff said three-fifths of driver defects leading to accidents are fatigue and falling asleep. Writing in *Today's Health* magazine, published by the American Medical Association, Dr. Potthoff said one-fifth of drivers involved in fatal accidents are out-of-state residents but in vacation time the proportion is much higher.

"Drivers who set long mileage schedules for each day usually are fast drivers; speed is the leading cause of traffic accidents and as it increases the injuries are greater in case of accident," he said.

"Accidents sustained far from home cause much-increased difficulty," he said. "Contacts are with strangers; garage service men, physicians, lawyers, police officers. Injuries may require a long stay at a local hospital. It may be necessary to summons distant relatives. Police or civil action may require a return many months later.

"Reasonable driving schedules protect family members who are passengers, precisely the ones we wish most to protect. They provide an excellent example to children, those we wish to teach safety, particularly with respect to driving habits.

"Stopover expenses in small cities are low, perhaps less than the costs at the destination, and automobile expenses are lower when driving is leisurely.

"For safety's sake, vacation can be regarded as starting with the trip, rather than at the destination. A stop-over at a point of historic interest or of beauty can be found usually Some vacationers do not set a rigid schedule; with them every hour of driving is a search for the new and unusual rather than an urgent rush."

MEDICINE AND INDUSTRY

The emotional and physical health of industrial employees, executives and worker alike, needs specialized on-the-job medical attention.

Dr. Harold A. Vonachen, East Peoria, Ill., made his report, which appeared with articles on mutual problems by representatives of medical education and industry, in the *Journal of the American Medical Association*.

Dr. Vonachen, Dr. Ward Darley, Denver, and Robert E. Wilson, Chicago businessman, agreed that medicine is a "community" concern and that industry has an important stake in medical progress.

"The life of the worker outside of his employment situation may determine his success or failure at work," Dr. Vonachen said. "Family health problems may keep him off the job. Domestic conflict can cause absenteeism and accident-proneness. Alcoholism, now considered an illness, is a serious problem in some industries."

He said emotional ills are at the root of many industrial work problems. It is said that 60 to 80 per cent of job separations stem from social incompetence rather than technical incompetence.

Tense, hard-driving executives need a special health program. The health of executives needs "constant guidance and observation" to avoid losing the services of key people through "illness or emotional failure."

"There are certain factors that constitute a particular danger to this group," he said. "Their work is not measured by time served, but by goals achieved; and their working day often extends far beyond recognized hours of employment."

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JOHN H. HAMILTON, M.D., Editor

SCHOOL HEALTH SERVICES AND THE HEALTH DEPARTMENT

By B. M. Drake, M.D., M.P.H.

Assistant Director, Local Health Division

N. C. State Board of Health, Raleigh, N. C.

We who have adopted the field of public health as our life work have long since accepted the fact that school health is one of the major areas of public health interest in every community. The acceptance of this has resulted to a large extent in over-emphasizing school health in terms of health department time. In many places as much as 50 per cent of the time of all of the health department staff is taken up with school health work.

We have accepted the school health problem with mixed emotions. We want to do a job that will improve the over-all health of the community. We have, shall we say, a "mandate" from our employers to protect the health of our people, and yet the problem of school health is so involved that we feel we are beaten before we start. We see glowing statements about books such as "Solving School Health Problems." Upon buying such a book we find that the author does not even approach the practical. We consult other authorities and are still disappointed, because even these do not help us.

Fortunately for all of us the 6-18 age group is about the most healthy in our population. Most of them have

been immunized against the communicable diseases (by one means or other). The chronic debilitating diseases have not set in. Many of the health problems of the school age group fall into two major categories:

(1) sequelae of congenital conditions or earlier diseases and (2) results of unfavorable environmental conditions

Most authorities have broken down school health services into several sub-heads: (1) Health appraisal of the children—This can consist of (a) teacher screening and observation followed when needed by nurse observation, with the child being seen by a physician when and if needed; (b) the "examination" of large numbers of children by the health officer with or without parents' being present; or (c) the more careful, more complete study of the health conditions of the child in the presence of teachers and/or parent. There may be a combination of these three or of any two of them. Any of them may be good, bad or indifferent depending on the skill and interest of those doing the work.

In general, it seems the best all-

*Presented at Alabama Conference of Health Workers, Birmingham, March 2-4, 1955.

around method would be a combination of teacher-nurse screening and observation with the over-all appraisal by the physician of the children at rather widely spaced intervals during their school life. Where indicated the child might be seen by a physician more frequently.

The entire health program, if properly done, could be made a part of the learning process for the children. For example, if the class is studying the eye, vision screening by means of the Snellen chart could be brought in by the teacher as a part of the lesson. Similarly, the medical history and examination should be an educational experience for both the child and the parent.

As in most health department enterprises, the health appraisal is very likely to come to nothing without a follow-up. This is usually done by the nurse in the course of her routine home visiting. She continues the educational process beyond the confines of the school and thus merges it into the over-all health education process in the community. At best this type of program can result in some health education of the children and parents, in the discovery or rediscovery of certain defects with the possible correction of these if there is money for this.

(2) The control of communicable disease in the school population can be enhanced by a routine teacher observation program. An observant teacher, through her daily contacts with the children, has an opportunity to spot the earlier symptoms of certain childhood diseases and upper respiratory infections. Seeing these, she could and should isolate the suspect and refer the matter to some higher authority who in turn should see that the child is taken home and/or seen by the family physician, if need be.

(3) The provision of emergency care for accidents occurring during school hours and for sudden illness or other emergency conditions is a responsibility of the school and should not be delegated to the health department. In some areas contracts are made with

physicians practicing in the neighborhood. Blanket accident insurance policies will take care of the cost in most cases. This will generally result in a much more efficient service than could be rendered by the health department, because its personnel is not geared to an emergency room type of work and because the nurses and doctors cannot hold themselves in readiness for emergency calls that may never come. They have other vitally important work sometimes miles away from the school.

(4) Health Instruction—This is of interest to public health personnel but should be considered a part of the over-all instructional program. The health officer, nurse, sanitarian and health educator should be available as "resource" people but should not attempt to do the actual teaching unless they are trained in teaching methods and could do an adequate job.

(5) The school environment is an important factor in the life of the child from several points of view. Reason (1) has pointed out that there are the emotional and physical environments and that both are equally important in the growth and over-all health of the children. The physical environment may be a positive factor in the educational process as well as the over-all health of the school children. All of us readily admit the need for safe and adequate water supplies, proper sewage disposal, adequate washrooms, etc. Likewise, we see the need for good lighting and ventilation. Regular inspections by qualified sanitarians followed by conferences with the principal and superintendent can result in many improvements at little cost.

The school health situation has been compared to industrial health. It has been pointed out that it is up to the school to provide a safe environment, as industry has done, in order to minimize the possibilities of accidents in or around the schools.

The emotional environment is determined largely by the emotional health of the teachers and other school staff members. While an unhealthy emotional environment *may* not hurt the emo-

tional development of a healthy child, a healthy emotional environment will *certainly* not contribute to the development of emotional problems in the children.

It should be emphasized that if and when possible the family physician or dentist should be utilized in the health appraisal, in the correction of defects and in the efforts to control communicable diseases as well as in the emergency services. Of course in many of our schools there is a relatively large number of children from indigent or medically indigent families. It is the responsibility of the community to provide for the correction of defects in this group. In most places, for example, there are the various welfare agencies. The Lions clubs usually are interested in sight conservation and will help with the purchase of glasses; other volunteer health agencies are ready and willing to help. In some states funds are appropriated which may be used to supplement welfare and volunteer agency money and aid in the correction of these defects. All in all, such a corrective program costs the community a great deal of money.

With some minor differences, these are the usual school health services throughout this country. In some places they are administered by the health departments, in some by the school systems and in others by a combination of the two. Throughout the areas where the load of public health work is carried by the local health department it is usually assumed that the school health services will be done by the health department. In some areas an attempt is made to get it to enter into a program which includes indigent medical care, first aid and a round-the-clock consultation service for the school children. Unfortunately, in some cases the health department has gone along with the thinking that this is the "best may out."

I would now like to go back to two statements made earlier in this paper: (1) "We have . . . accepted the fact that school health is one of the major public health problems" and (2) "Many

health problems of the school age group fall into two major categories, (1) sequelae of congenital conditions or earlier disease and (2) results of unfavorable environmental conditions."

Let us remember that we in public health are responsible for the health of our community. We have a mandate—to protect health, to prevent illness. Are we fulfilling that mandate in the school health area? If not, how can we best carry out this mission? We have tried over the years to find and correct defects of school children—after they have gotten into school. By and large, this approach has failed. Why do we continue to use it? Has this produced the best results for the money and effort expended? We can hear and read statements that it is easier to carry out a good public health program in the schools because we have a "captive" group. But what about the expense and the results? I wonder if we have not missed the whole point.

Recent studies have indicated that there is a considerable amount of question concerning the entire philosophy of our present school health program in some quarters. In a recent journal (2), for example, there is a review of the problem in a large northern city. Careful examination of over 1,000 first grade children revealed only 21 with previously unrecognized defects and only one with a defect that could not easily have been detected by the teacher. The writers of this paper concluded that the routine physical examination as a casefinding measure was a waste of professional time, and by implication it was brought out that the conditions of these 21 children should have come to the attention of the physician before entrance to school.

A study recently made by the Health Information Foundation (3) revealed that there was knowledge of defects among a large group of children in Pennsylvania but that nothing was done about them. Over 40% of these school children with remediable defects did not have the defects corrected. There was but little variation in the percentage needing and not re-

ceiving care in varying economic situations. The Foundation report stated that "The medical and dental defects discovered . . . are being ignored in all kinds of homes." Then the study group attempted to see how the situation could be corrected. They intensified the follow-up work done by nurses—and the picture improved.

Unfortunately, this tells us nothing. We have known for years that a good nursing follow-up means better results—regardless of what the department is attempting. However, to me there was one significant point brought out. In the groups studied the Foundation found that the correction rate was higher among younger children.

If the statement that our school age children are among the healthiest people and that most of their health problems are carried over from an earlier age is correct, could we not adopt the principle that it is easier to prevent than to correct? In going through the accepted public health texts we find that it is assumed that we will have to find and correct defects that are already present in the children rather than attempt to prevent these defects.

It has been said also that the most neglected group in our entire population is the one-to-six-year-old group. One wonders if a good preschool health program would not eliminate many of our school health problems. We can see that in the six-year-old health patterns, both physical and emotional, are pretty well set. Nutritional habits are fixed, and any change will be the result of a major "battle" on the part of parents, teachers and health department personnel. Would we not do a better job by helping to set these patterns in the proper mold, rather than trying to change them? You will recall that a leading religious organization has stated that if it is given a child for the first seven years of its life, the child will believe in that faith for the remainder of its life. This fact has long been accepted in other lines of endeavor. Why have we not awakened to the fact that, in addition to being

difficult and expensive, our present school health programs are not producing results?

We have a mandate, and there is a need. The need can be met. How are we meeting this need? In section V of the Childrens Charter there occurs the following statement, "For every child: health protection from birth . . . including periodic health examinations, protective and preventive measures." How have we met the need? Do we not owe at least as much time, effort and money to the infant and preschool child as to the school child? And, going still farther back, is not the health of the mother an important factor? We tend to forget that unhealthy mothers often produce unhealthy babies.

These ideas may not be in line with the usual thinking, but it would be stimulating to see local health department and school system break with tradition and put on a ten-year demonstration program somewhat along these lines. For such a program to be successful the entire staff of the health department and all of the school personnel would have to be convinced that in the long run it would be best for them. Practicing physicians and dentists, the boards of health and education, the county commissioners and finally a large majority of the citizens would have to be made aware of the program and its potentialities.

Such a program might be stimulated by a grant from one of the philanthropic foundations.

Once the community and all the groups are sold (for this *will* take good salesmanship) and financial support obtained, the initial planning could begin. This should include, in addition to health departments and schools, the medical and dental professions, the P.-T.A., civic groups and other interested persons. This could be in the form of a Health Council, and, if there are existing health or school health councils, they should certainly be utilized. The actual details of the program would have to be worked out by the interested groups, with the following as a very

general set of guideposts:

The first step in a good school health program would be good prenatal care. Education of the entire community is essential to this condition. Those who can go to their physicians must go early and should know enough to demand adequate care. Those who are to be cared for by midwives should receive as good or better prenatal care by the health department. After the delivery, an intensive educational effort would be made to have the infant seen by the family physician or, if this is not possible, in the health department, at regular intervals for the first year. Between time home visits by the public health nurse would help keep the parents aware of the health needs of their child.

After the first year the child *must* not be forgotten. Two visits to the physician and the dentist should be insisted on during each year. At such times the physician would not only do a thorough examination but should discuss all phases of the child's health, growth and development with the parents and should correct or attempt to avoid potential defects.

Attempts should be made to provide the community with a fluoridated water supply, and the rudiments of good nutritional habits should be taught the parents in order, insofar as possible, to avoid such defects as dental caries and nutritional deficiencies. It has been stated that about one to three per cent of our school children have developed rheumatic fever. If this could be found in the earlier stages and preventive measures instituted, the amount of cardiac damage among our school children and adults would be reduced.

Orthopedic difficulties could be found early, when correction is less of a problem. Mental health problems should be recognized as such by the family physician or health department and steps taken to correct these before it is too late. There is no longer any excuse for communicable diseases such as diphtheria, whooping cough or measles in our schools, if the health de-

partment is on the job. The entire program would include a complete, careful examination of the immediate preschool child, followed by a good teacher observation program using a growth chart such as the Wetzell grid, which would, in most instances, predict any marked change in health status of the child. When such a situation is noticed, the child could be taken to a physician for a complete checkup. Finally toward the last of the junior high period, there might be another complete examination of all the children.

It is felt that, if we would spend as much money on *prevention* as we do for *correction* and *cure*, we would have enough to carry out the program I have outlined and have a large savings.

In the matter of environment, much may be done, even with the limited resources of most of our school systems. Light meters may usually be borrowed from the local power company office. Then, with the help of personnel from the state health department, the seats in the room may be arranged so as to take advantage of all available light. Cleanliness, per se, is not expensive. Arrangements may be made to improve heating and ventilation problems. Imagination and willingness to try can turn a poor, unattractive, unhealthy school environment into one that is clean, healthy and a good example to the householders of the community. In general, our sanitation and accident prevention programs have made wonderful progress, but they are limited by housing, both private and for schools. These factors are, in turn, limited by economic factors which, in turn, are limited by the health (or lack of health) of our people. An unhealthy group of school children produces an unhealthy group of adults, who are not first-class wage earners and taxpayers. We find ourselves in a vicious circle. Can we not find someone with enough faith, enough courage to attempt to break out of this circle of poor economy, poor schools, poor health? Remember it would not take much money,

and we in public health have a mandate to protect the health of our people.

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LEGISLATION AND POLICY GOVERNING THE EXPENDITURE OF SCHOOL HEALTH FUNDS

By Charles E. Spencer

Director School Health and Physical Education
and

Co-director School Health Coordinating Service
of the

State Department of Public Instruction and the
State Board of Health, Raleigh, N. C.

The 1955 North Carolina General Assembly reduced the appropriation to the State Board of Education for school health from \$550,000 for each year of the biennium to \$425,000.

REPORT OF THE ACTION OF THE JOINT APPROPRIATIONS SUB-COMMITTEE APPOINTED TO STUDY AND MAKE RECOMMENDATIONS TO THE JOINT APPROPRIATIONS COMMITTEE OF THE 1955 GENERAL ASSEMBLY

"*Child Health Program*, line item 664: Your Sub-Committee made considerable study of this program and recommends that use of the funds be more largely restricted to the purpose of correcting chronic remediable defects of medically indigent school children. It was found that last year only \$314,124 (or 58%) of actual expenditures from the fund were used in paying for such corrections. Your Sub-Committee was of the opinion that an appropriation of \$425,000 per year for the next biennium would, under the proper restrictions as to use, result both in larger expenditures for actual corrections of physical defects and make possible a budget reduction in this item of \$125,000 per year. The recom-

mended restrictions are incorporated in a proposed amendment to the Appropriations Bill."

SEC. 18.2 OF THE BUDGET APPROPRIATION BILL FOR THE BIENNIIUM 1955-57

That appropriations made to the State Board of Education under Title IX-I for the Child Health Program shall be expended for diagnosis and the correction of chronic remediable physical defects of public school children through the Child Health Program of the State Board of Education in the following manner:

(1) Upon discovery of the defect, if it appears that the expenditure of school health funds will be required for correction through providing spectacles, prostheses, or other correction of chronic remediable defects, the appropriate school official shall forthwith notify the county superintendent of public welfare of the county in which the child resides. Thereupon, the superintendent of public welfare shall make such investigation as necessary and only upon his certification of financial need shall funds be expended for this purpose: Provided, however, that in case of minor dental defects involving

expenditures not in excess of \$10.00, school and health department personnel may determine financial need.

(2) Child Health Program funds as defined in this section shall be expended in accordance with a uniform State-wide schedule of fees and costs, and only to provide spectacles, prostheses, and other correction of chronic remediable defects of public school children: Provided that a reasonable amount of the total appropriation may be expended for case finding, health education, and intensive follow-up services.

STATE BOARD OF EDUCATION REDUCES ALLOTMENT AVAILABLE TO CITY AND COUNTY SCHOOL ADMINISTRATIVE UNITS

Since the General Assembly reduced the amount of the annual appropriation of funds from \$550,000.00 to \$425,000.00 it was necessary for the State Board of Education to reduce the allotments available to local school administrative units. The reductions made are as follows:

- a. In 1954-55 each county and city school administrative unit was allotted an amount equal to 47.95 cents per pupil based on the average daily membership for the first seven months of the previous school year. For the year 1955-56 the allotment available is reduced to 35 cents per pupil.
- b. In 1954-55 the allotment to each county regardless of size was \$1000.00. For the year 1955-56 the allotment available to each county is \$775.00. As in previous years, each school administrative unit within the county will receive a portion of the \$775.00 allotment based on its percentage of the total students in average daily membership in the county.

POLICY GOVERNING THE EXPENDITURE OF STATE BOARD OF EDUCATION SCHOOL HEALTH FUNDS

In order to carry out the intent of Section 18.2 of the Budget Appropriation Act for the Biennium 1955-57

under Title IX-I for the Child Health Program, the State Board of Education and the State Board of Health hereby adopt the following policy:

1. The health officer of each local health jurisdiction and the superintendent of each administrative unit in each such jurisdiction shall submit for approval to the School Health Coordinating Service a joint plan and budget, based on need, for the expenditure of the funds available to each administrative unit. The School Health Coordinating Service personnel will, upon request, provide assistance to schools and health departments in preparing plans and budgets.
2. A minimum of 80 per cent of the school health funds available to each school administrative unit may be expended for diagnosis, case finding, health education and intensive follow-up services. Included under this provision are such services as:
 - a. General physical examinations
 - b. Eye examinations
 - c. Hearing testing
 - d. Nurses' services in inspecting, and helping teachers inspect, school pupils to detect signs of deviations from normal and follow-up services in connection with the correction of defects.
 - e. Health education for the improvement of health instruction and effective use of available health services.
4. School administrative units showing need for the allotments available in accordance with items 2 and 3 above should request the State Board of Education to certify such funds and furthermore should notify the School Health Coordinating Service. Allotments will be made in terms of actual needs.
5. School health funds shall be expended for correction of chronic remediable defects only upon certification of financial need by the superintendent of public welfare: Provided, however, that in cases of minor dental defects involving expenditures not in excess of \$10.00, school and

health department personnel may determine financial need.

6. School health funds for prostheses (including spectacles) and correction of other chronic remediable defects of public school children shall be expended in accordance with a uniform State-wide schedule of fees and costs to be set up by the State Board of Education and the State Board of Health.
7. School health funds may not be used:
 - a. To purchase any types of supplies

and equipment or for in-service education.

- b. To pay salary or travel of health officers, sanitarians, nutritionists, clerks, psychologists, psychometrists, special education teachers, physical education supervisors, athletic directors, teachers and school or other administrative personnel.
- c. To pay transportation of school children for examinations or correction of defects.

VOCATIONAL REHABILITATION

By H. E. Springer, Chief of Rehabilitation Services
State Department of Public Instruction

What do we mean by vocational rehabilitation? It is a service that the government provides, by law, to help disabled men and women qualify to earn their living.

State and Federal governments have planned this kind of help for all disabled people.

Such services as schools, health centers, fire and police protection are provided by the State or local government in every town or county. Think of vocational rehabilitation in the same way. It is not charity. Such services are planned as a legal right for all who may need them.

Many thousands of disabled people have been helped to get jobs that they can do well. The purpose of vocational rehabilitation is to help all other disabled people build up and use the abilities they have left so that they can make a living.

Most of the people who work in vocational rehabilitation are called counselors. The counselor works with disabled people as a friend and helper. He sees to it that they get the help they need.

SERVICES OF REHABILITATION

What services are available? This will be decided on the basis of facts about the needs and abilities of the

handicapped person. The rehabilitation people get these facts in several ways:

1. They obtain a medical examination to learn what the client's physical abilities are.

2. They interview the client and give him tests to determine work skills and interests.

There is no charge for diagnostic services to the disabled person. The facts from the medical examination and the interview and tests are studied. Then the disabled person and the vocational rehabilitation counselor make a plan to help the disabled person to build up his skills and abilities so that he can work and make good on a job.

There are a number of services which may be needed in the plan for vocational rehabilitation which the counselor and the disabled person set up:

1. Medical help to bring back or improve the person's ability to work. Doctors and other medical people do everything they can to make the disabled person strong enough and well enough to work. They give the disabled person an operation if he needs one. Or they give treatment if he needs that kind of help to work. Medical help may be given in hospitals, homes, offices or other places. The Division of Vocational Rehabilitation pays the

bill if the disabled person cannot pay. Sometimes the Division pays part of the bill and the disabled man or woman pays what he can. The counselor assists the disabled person to get any medical help he needs.

2. Physical aids such as braces, trusses, artificial limbs, and hearing devices. The counselor helps the disabled person get the kind of aid he needs and helps get used to using it. If the disabled person can pay for the aid, he pays. If he can't pay, the Division of Vocational Rehabilitation will pay all or part of the cost.

3. Advice to help the disabled man or woman to pick out the right kind of work and to get ready for that kind of a job. If people become disabled, they may have to change the kind of work they do or they may have to learn to work for the first time. The counselor can help them very much with his advice and in other ways. There is no charge for the counselor's help.

4. Training for the right job. If a disabled person needs to learn how to do some kind of work, the counselor will help him get the right kind of training. This may be given on the job, in a trade school or in many other places. Some people are trained at home. The Division of Vocational Rehabilitation pays for training costs.

5. Board and room and travel during rehabilitation. If the disabled person needs it, the Division of Vocational Rehabilitation may pay for his board and room and other necessary expenses. Or he may pay part and the Division may pay part. If he has to travel while getting in shape to work, the Division may pay the cost or part of it. Board, room and travel help are given only while the disabled person is being made ready for work or while he is being helped to find a job.

6. Job finding. When the disabled person is ready for work, the counselor will help him find the right job. The counselor knows where to get help in finding jobs. The State Employment Service finds jobs for many disabled

people and the counselor works with the Employment Service. There is no charge for this help.

7. Tools and licenses. If a disabled person needs tools or a work license to get the right job and make good, the Division of Vocational Rehabilitation will help him get what he needs. If he cannot pay, it may pay all or part of the costs.

8. Help on the job. When the disabled person goes to work, he may need some help to "iron out" troubles or to learn some things about the job. The counselor helps him without charge.

Some people will need all of the services listed above. Some will need only one or two of them. But they are all there, and the counselor will help each disabled person get those that he needs.

All the information that the vocational rehabilitation people get from a person is kept confidential.

WHO CAN GET REHABILITATION?

Any man or woman of working age may get vocational rehabilitation if he or she is disabled in mind or body so that he or she cannot work or must take a job which would be harmful for him or her. Vocational rehabilitation services are for those with unseen handicaps as well as for those who have handicaps which show. A few unseen handicaps are tuberculosis, deafness, mental illness, arthritis, rheumatism and heart disease. There are many others. There are a great many handicaps that can be seen, too, such as an amputation, paralysis and palsy. There are many more of these also. The kind of disability does not count in deciding whether a person can get vocational rehabilitation. It can come from an accident, disease or birth. It does not have to be a disability that comes from getting hurt on a job.

In other words, ANY disability that keeps the person from using his best ability to earn a living—or that interferes with his making a living—would make him eligible for vocational rehabilitation.

HOW TO ASK FOR REHABILITATION

All vocational rehabilitation service is given through the State agency. Therefore, application for it should be made to the Division of Vocational Rehabilitation, in care of the nearest local office. Offices are located in Asheville, Charlotte, Salisbury, Winston-Salem, Greensboro, Durham, Raleigh, Greenville and Wilmington.

THE DISABLED CAN WORK

Many handicaps, physical and men-

tal, can be removed or reduced through vocational rehabilitation services. When his best abilities have been discovered and developed and when the disability has been properly treated, the disabled person gets help in finding the right job for him. When the right job is found, he can do that job as well as anybody. Records of thousands of physically and mentally handicapped persons in wartime and peacetime have proved this. That is why vocational rehabilitation people say: "It is not what a man has lost, but what he has left that is important!"

IT'S NEVER TOO LATE

By Sarah E. Walker, Senior Public Health Educator
and

Alice N. Blackwelder, Senior Public Health Nurse
Cabarrus County Health Department

The girl, small for her age, sat across the desk from the counselor. Looking into her eyes, one could not escape recognizing that her problems were far beyond the strength of her fifteen years. Facing up to motherhood without the sanction of marriage is not easy at any age at any time.

"Looking back, now, do you feel that there is anything that your school might have done that would have helped you having to face this problem today?", the counselor asked.

Quick as a flash came her reply, "Yes, they didn't tell us enough."

They didn't tell us enough! Were we failing in our responsibilities to our youth by not providing the factual information which would help them to cope more effectively not only with the current problems of living, but with the persistent life situations involving the wide gamut of human relationships?

If the health education program of this high school with an enrollment of 390 students could include a special emphasis area in "Developing Wholesome Life Relationships", would the schools be meeting more adequately

the unmet needs of youth? The school health education team, the superintendent of schools, the principal, the faculty health committee, the public health nurse, and the health educator shared a deep-running conviction that such a program would provide many opportunities to give factual information. But factual information, we recognize, is not the whole answer; understandings, feelings and attitudes are basic, too, in influencing behavior. Contacts with concerned parents intensified these convictions.

We were all in agreement that the problems could best be met by integrating the information in various areas of the curriculum. However, it seemed that if we were going to do anything during the current year for all the boys and girls, a plan would have to be devised wherein all the students could be reached.

As we explored the possibilities together, in conferences, and in committee meetings, these questions came into focus:

1. What factual information concerning physical and emotional growth should be included?

2. How could this information be presented in order to best help the students see that the understanding of self and others is essential in understanding why certain kinds of behavior are acceptable?

3. Could we be objective and at the same time create an atmosphere which would be conducive to student-participation?

4. Where could we find resource people to help us in the various areas?

The high school principal suggested a schedule arrangement making it possible for all the students in a given class to meet for five one-hour periods on consecutive days. The committee agreed on the following outline as general suggestions for the discussion periods:

I. THE FAMILY

1. Development of Family Life
2. What Is A Good Home?
3. Family Relationships
4. Your Home of the Future

II. ECONOMICS OF FAMILY LIFE

1. Cost of Individual Living
2. Getting the Most for Your Money
3. Budgets
4. Economic Values of Education
5. Cost of Establishing and Maintaining a Home
6. Cost of Babies—Moral and Legal Obligations

III. HOW TO GROW UP EMOTIONALLY

1. How Emotions Grow
1. Learning to Handle our Feelings
3. Channels for Creative Energy
4. Importance of Sex Drives
5. Power of Reason
6. Growth in Social Skills
7. What it Takes to be Really Grown-up
8. Choosing a Life Mate

IV. ANATOMY AND PHYSIOLOGY OF REPRODUCTIVE SYSTEM

1. Physical Maturity
2. How Conception Takes Place
3. Reasons for Continence

V. QUESTION-AND-ANSWER SESSION

The following persons readily and willingly agreed to lead the various discussion groups: a local minister, a college professor of economics, a health educator in an adjoining county who had a rich background of experience in working with boys and girls and a local physician.

This plan was initiated with the senior class and carried through the junior, sophomore and freshman classes. During the discussion the students were encouraged to participate by asking questions and expressing their viewpoints and opinions. However, to encourage them to ask any questions which they might hesitate to ask in the group, a sealed box was available for them to place their unsigned and unidentified questions throughout the four discussion periods. At the conclusion of the last session, the question box was opened and the questions divided into the following categories: social, emotional and physical, and assigned to individual panel members. The panel was composed of the public health nurse, the health educator, member of the faculty health committee and two class representatives.

The questions were very revealing in identifying the attitudes, concerns, interests and problems of the students. As we moved from the senior to the freshman class more and more of the questions had to do with physical aspects. Approximately 75% of the questions asked by the freshman class were in the area of physical functions and boy-girl relationships.

A climate of mutual respect and understanding of the purpose of these discussions prevailed. The students were encouraged to aid their feelings. Although there were often conflicting opinions in the student discussions, the panel felt that their inquiries were sincere and that answers were honestly sought. The adult panel members felt, too, that in addition to serving as discussion leaders and giving factual information, they had definite responsibilities throughout the discussions for

anchorage along these lines:

1. Trying to develop understandings of why certain kinds of behavior are acceptable

2. That accurate information is one of the basic guides for acceptable behavior

3. That conforming to the moral code will pay dividends in personal living

4. To develop a sense of individual responsibility in management of emotions, and to realize that the individual has a responsibility for the welfare of others.

The adult panel members had made one commitment to the students, that any question they placed in the box would be discussed and answered to the best of their ability. We were able to carry through with this promise and are confident that we were able to pinpoint these values through this kind of discussion:

1. That problem discussions can be carried on in an objective manner and that adults are sincerely interested in helping teenagers with their problems.

2. That talking things over is one

step in problem solving and that individual counselling can often help to solve a personal problem.

Because of the crowded schedules of the persons involved, it was not possible to adequately evaluate the program. This year the school health education team plans to work with the entire faculty, high school and elementary, in studying the needs of boys and girls in human relationships and then try to see where and how the school curriculum can help meet the needs. The school health education team feels that this program had a marked degree of success. There are some tangible evidences: the comments of the students, the favorable reaction of the community and certainly the satisfying experiences which come to those who have an opportunity to work cooperatively in trying to build for the more abundant life.

Some of the intangibles, we hope, are in the minds of the boys and girls, who listened, who questioned, who shared their thinking, and who through the group process, extended their thinking and deepened their values.

"EARLY FIND THE PEACEFUL SKIES"

By R. M. Fink, Ph.D.

School Health Coordinating Service of the
State Department of Public Instruction and the
State Board of Health, Raleigh, N. C.

Ay, soon upon the stage of life,
Sweet, happy children, you will rise,
To mingle in its care and strife,
Or early find the peaceful skies.

—Daniel Clement Colesworthy

For the past eight years the School Health Coordinating Service has aided the public schools in programs for the maintenance and improvement of the mental health of school children.

During the past school year twenty-six school administrative units were aided in planning and executing meetings or work sessions on mental health.

In these units 1768 teachers and administrators participated in programs totalling from two to twelve hours. Some of the topics for these sessions were:

Emotions and Behavior
Feelings of Inferiority
Feelings of Hostility
Fear and Anxiety
Understanding and Helping the
Submissive Child

School systems were also aided in fifteen meetings attended by about 2200 parents. Some topics for these sessions were:

What Are Junior High Students
Like?
Healthy Emotional Environments
In The Home
Expectations and Responsibilities
Within The Family

One experimental program was developed and used with school administrators in a large county. The program was designed to increase productivity and morale and to reduce tensions. Illustrated lectures, films, discussions and rule-playing were used to aid administrators to improve relationships between administrative personnel, with teachers, and with the public.

During the school year 1955-56 schools will again be aided to develop programs based on local problems. In addition, four topics have been found to be profitable for local use:

Maintaining and Improving Mental
Health In Our Schools
Understanding and Helping the
Submissive Child
Understanding and Helping the
Hostile Child
Understanding and Helping the
Withdrawn Child

Detailed plans for these programs are designed in cooperation with administrators and teachers according to their desires.

NOTES AND COMMENT

BY THE EDITOR

REPORT ATOMIC RADIATION AFFECTED PREGNANCY OUTCOME

Radiation from the atomic bomb explosions over Nagasaki, Japan, in 1945 had considerable affect on the outcome of pregnancies of women in the city who were pregnant at the time.

Among 30 pregnant women with major signs of radiation injury, there were three miscarriages, four stillbirths, three babies who died within the first month of life, three infants who died within the first year of life, and one who died at two and one-half years. Four of the surviving 16 children were mentally retarded.

Drs. James N. Yamazaki, Stanley W. Wright and Phyllis M. Wright, Los Angeles, found this evidence in a study of pregnant women exposed to the atomic blast at Nagasaki and their offspring. Their report appears in the American Journal of Diseases of Children, published by the American Medical Association.

The pregnant women studied were divided into two groups—98 who were within the radiation area, 30 of whom showed what the physicians termed major radiation injury signs, and a

control group of 113 pregnant women who were outside the radiation area of the city at the time of the bombing.

The over-all morbidity and mortality of the outcome of pregnancy among the 30 women who suffered major radiation injury signs was approximately 60 per cent, as compared to 10 per cent among the 68 other pregnant women within the radiation area, and about six per cent among the 113 women outside the radiation area, the doctors stated.

In the group of 68 women who were within the radiation area but sustained no major signs of radiation injury, there were one miscarriage, two stillbirths, three babies who died within the first month of life, and one case of mental retardation.

In the control group of 113 pregnant women outside the radiation area, there were two miscarriages, one stillbirth, one baby who died within the first month of life, and three infants who died within the first year of life.

In addition, the study disclosed that children born to mothers with major signs of radiation injury were retarded in growth and development, the doctors stated. These children were signifi-

cantly smaller in height and head circumference than those children born to mothers in the control group.

"It is difficult to evaluate the effect of radiation of this mortality and morbidity, since other factors, such as trauma, burns, infections, etc., may have a deleterious effect on the fetus," the doctors stated. "The evidence strongly suggests, however, that radiation, either directly to the fetus or indirectly as a result of its effect on the maternal tissues, was of considerable importance in determining the outcome of these pregnancies."

The physicians are associated with the Laboratories of the Atomic Bomb Casualty Commission, Hiroshima, Japan, and the Department of Pediatrics, University of California Medical Center.

WARNS AGAINST CARELESS USE OF CLEANING FLUIDS

Cleaning fluids can be poisonous.

Too often labels on cleaning fluid bottles do not list potential dangers or necessary precautions for the solution's use—precautions necessary because many such fluids contain a very toxic chemical called carbon tetrachloride—according to Dr. Albert V. Myatt, New Orleans.

"Carbon tetrachloride is a clear fluid chemically related to chloroform," Dr. Myatt wrote in *Today's Health* magazine, published by the American Medical Association. "It evaporates quickly when exposed to air, causing fumes with a pungent odor. Both the fumes and the liquid are capable of causing poisoning. Carbon tetrachloride is used as a solvent, a dry cleaning solution, a grease remover, and a fire extinguisher."

Deaths from inhalation of fumes or ingestion of the chemical have been reduced as a result of modern methods of therapy. However, poisoning by carbon tetrachloride causes a lingering illness of one to three weeks, during which the kidneys shut down, the liver

enlarges, and the bile backs up into the blood stream, causing jaundice.

"For some reason, people who habitually drink alcoholic beverages are much more susceptible to poisoning by carbon tetrachloride than those who do not drink," he pointed out. "Others who are more susceptible than normal to this poisoning are malnourished people or those suffering from diseases of the heart, stomach, kidneys or liver. Anyone who has once been poisoned by carbon tetrachloride is more likely than usual to be affected by it again."

"That one has been using carbon tetrachloride with no precautions all his life without difficulty does not mean he can continue doing so. The next careless use may cause illness."

Dr. Myatt listed six precautions to be taken when dry cleaning solutions are used:

1. Read the label carefully to determine whether the solution will burn. If it is flammable, use it outdoors, away from sources of flames and sparks.

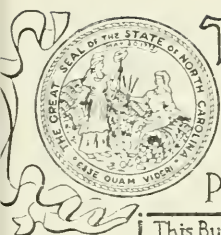
2. If the solution is nonflammable, look for the ingredients on the label. If ingredients are not listed, assume it to be carbon tetrachloride, and act accordingly. Use carbon tetrachloride solution in a well-ventilated room or, preferably, outdoors. Do not breathe the vapor. If you must work inside, open windows and doors, and vacate the room as soon as possible until the odor and fumes vanish. Garments cleaned with the solution should be placed outdoors to dry.

3. Mark "POISON" on the label of cleaning fluid containers and store them out of reach of children.

4. Never put carbon tetrachloride solution in a soft drink or whiskey bottle or other beverage container, as it may be mistakenly consumed.

5. Do not use carbon tetrachloride solution if you are ill, or if you have drunk alcoholic beverages within 24 hours, or if you are a chronic user of alcohol.

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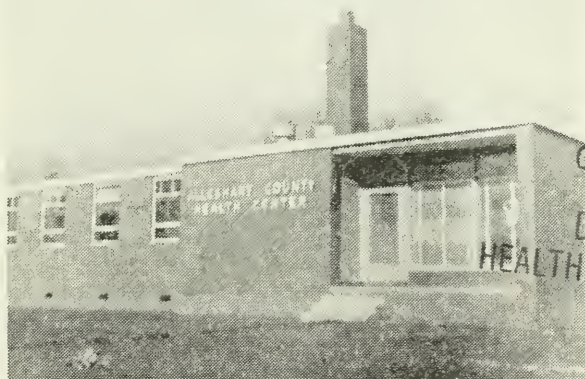
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J.H.H."

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DIABETES IN A PUBLIC HEALTH PROGRAM*

By M. T. FOSTER, M.D., F.A.C.P.M.

Cumberland County Health Department, Fayetteville, N. C.

DEFINITION: Diabetes mellitus is a hereditary metabolic disease characterized by high blood sugar levels and excretion of sugar in the urine. It is associated with a relative insulin insufficiency. In diabetes there is a faulty storage of sugar in the liver, overproduction of sugar by the liver and apparently diminished utilization of sugar by the tissues. The result is an increased concentration of sugar in the blood and subsequently the appearance of sugar in the urine. When carbohy-

drate utilization is sufficiently impaired fat metabolism becomes disturbed in such a manner as to produce ketosis and finally coma. The most characteristic symptoms are the passage of large amounts of urine, increased thirst and excessive appetite, accompanied by loss of weight and strength.

PREVALENCE: Surveys made by the U. S. Public Health Service indicate

*Read before N. C. Academy of Preventive Medicine, September 8, 1955.

that in certain areas surveyed 1.7% of the population were diabetics. Assuming that this rate is applicable to the country as a whole, it can be estimated that more than two million persons in the United States have diabetes, and about one million of them are unaware of the disease. It has been estimated by others that from one to two per cent of the population are diabetics.

PREDISPOSING FACTORS: Hereditary susceptibility to diabetes has been known for a long time. The incidence of diabetes is several times higher among parents and siblings of diabetics than among the parents and siblings of non-diabetics. The marriage of known diabetics to one another should probably be avoided, since the disease would most likely appear in their offspring. While heredity determines susceptibility to diabetes, the actual occurrence of the disease among adults is correlated with obesity. Obesity may be the basis for the high incidence of diabetes in the adult group.

PREVENTION: Prevention of diabetes is a difficult task, as there are no specific measures that can be employed. All of us require insulin, and, if we cannot manufacture what we need in our own pancreas, we are now fortunate in that we can secure it by purchase or gift. No one knows the quantity required to maintain health and strength. Nature regulates the supply with surprising accuracy, balancing its production with the carbohydrate consumed and adjusting its output to the momentary demands of exercise or rest. Since certain known factors predispose to the disease, these known factors might be controlled in an effort to prevent the disease. Avoiding obesity and reducing overweight individuals is one of our best weapons in the prevention of diabetes. The second most important tool is the education of the public to avoid intermarriage of diabetics. High incidence of diabetes may also be attributed to familial patterns of living, such as excessive eating, especially of carbohydrates. As in other diseases, in order to find diabetes early,

periodic examinations for the presence of urine sugar and high blood sugar levels should be recommended. The detection of diabetes in its earliest stages before the onset of typical symptoms and continuing good care are basic elements in the prevention of disability and death from diabetes.

OBJECTIVES: The objectives in finding and treating diabetes are numerous. Approximately 50% of diabetics discovered early can control their disease by diet alone. The diabetic patient must be taught the nature of diabetes, how to take advantage of diet and the use of insulin, if necessary. He must be instructed in the proper use of exercise and how to prevent or combat the common complications of the disease. If the diabetic follows the rules of treatment and presents himself for check-up examination three or four times a year, there is no reason why most diabetics should not live as long as the non-diabetic.

The principal method for the early discovery of diabetes is urinalysis. Community surveys utilizing the blood sugar screening method and the urinalysis together have shown that about one out of three diabetics escapes detection if dependence is placed upon a single urine specimen. Both blood and urine sugar tests should be used for maximum benefits. As in the case of other diseases, a successful attack on diabetes requires the cooperation of the public, medical and allied professions, voluntary health agencies and health departments. The chief objective is to discover diabetes in its early stage when it can frequently be controlled by diet alone and offer a hope for restoration of pancreatic island formation.

I quote in part from an editorial in the August issue of the American Journal of Public Health: "The American people are becoming increasingly aware of the vast economic and social problems posed for our national life by the existence of millions of chronically ill and disabled persons in our midst. The problems will become more serious as a result of the aging of our popula-

tion. These problems of chronic illness and disability constitute a community health responsibility of the first magnitude. Health departments have begun to recognize their vitally important roles in meeting these problems within the framework of community effort." Diabetes, along with many other chronic diseases, is now receiving attention by many health departments in various ways. Public health education plays a vital role in most health work, and in the field of diabetes much can be accomplished by informing the public concerning this disease.

The American Diabetes Association since 1940 has carried on an educational program concerning the prevalence of diabetes and the necessity of early discovery and proper treatment. For seven years this Association has conducted a public education and case-finding drive through the local affiliates and committees on diabetes of county and state medical societies, with assistance from public health groups. Activities are conducted throughout the year, but the greatest effort is made during observance of Diabetes Week, which is the third week of November. The American Diabetes Association uses all mass communications media, while the local affiliates and health departments obtain the support of news-

papers and radio and television stations in their areas. The Association strives to educate the public as to the wisdom of periodic examination for diabetes and the importance of early recognition of the disease. It also seeks to distribute accurate information to the general public by literature, meetings and other appropriate means. Health departments could adopt the program of the American Diabetes Association in whole or in part and conduct diabetes educational programs throughout the year integrated with their general public health education programs.

Most diabetics receive their instructions, treatment and follow-up from their family physicians. Diabetic clinics have been established in some outpatient departments and in some health departments where needed for indigent patients. I believe, however, it is generally agreed that the health department in most cases should limit its activities concerning diabetes to education pertaining to prevalence, early case finding and the importance of medical supervision and treatment of the disease. Health departments should refer patients to physicians or treatment clinics whenever possible for diagnosis and treatment.

NEW PLAN FOR HOSPITALIZATION OF PUBLIC ASSISTANCE RECIPIENTS

By EDWIN S. PRESTON

State Board of Public Welfare, Raleigh

Under provisions of a 1955 amendment to Chapter 108 of the General Statutes of North Carolina, the State Board of Public Welfare was authorized to establish a State fund for the hospitalization of recipients of public assistance. These include recipients of old age assistance, aid to dependent children and aid to the permanently and totally disabled.

The new plan will make it possible for six dollars per day to be paid immediately out of funds from Federal, State, and county sources toward the hospital bills of these recipients. Previous to this plan such payments could only be made in small monthly installments, the amount depending upon the size of the assistance grant.

Under the new plan, counties will

continue to deal directly with the hospitals with which they work out agreements. The determination of the need of hospitalization will be made in the county upon medical advice, the hospital bills will be approved by the county department of public welfare and the check, made out in the State office, will be sent to the county department for payment to the hospital.

Details of the new hospitalization plan were developed in cooperation with representatives of the State Association of Hospital Administrators, the State Association of County Commissioners, the Medical Society of the State of North Carolina, the State Association of County Superintendents of Public Welfare and the Bureau of the Budget.

Any recipient is entitled to hospitalization when it becomes necessary upon medical advice. The per diem rate to be paid to the hospital from the State fund will be determined from time to time by the State Board of Public Welfare; at present it is six dollars.

The medical consultant of the State Board for the aid to the permanently and totally disabled program will also be the medical consultant for the State plan for the hospitalization program. Payments will be made only to hospitals licensed by the North Carolina Medical Care Commission.

The State fund for the hospitalization of assistance recipients will be maintained by the State treasurer in accordance with the provisions of the act. The fund will consist of monthly payments from Federal, State, and county funds. These monthly payments will be adjusted from time to time in order to keep the fund solvent and to maintain rates for each category sufficient to provide funds to cover expenditures for recipients in each category. Future rates will be determined on the basis of experience.

When an authorization is made in accordance with the plan, it creates an obligation for payment of hospitalization at the six dollar per diem rate to the hospital to which the recipient is admitted. Any obligation to pay more

than this per diem rate is to be determined by agreement between the county and the hospital, and payments will not come from the State fund.

Under no circumstances is an assistance recipient expected to apply his assistance money payment or any part of it to his hospital bill, either directly to the hospital or indirectly through refunds to the county. The monthly assistance payment to the recipient is intended only to cover the recipient's usual living expenses. If they are reduced because of hospitalization, the assistance payment will be reduced proportionately, provided he is to be in the hospital for a sufficient length of time to justify such action. When the recipient is released from the hospital, the payment is reviewed in terms of his needs as determined through the use of the standard public assistance budget.

If a church, relative or other interested party contributes any amount to the recipient's hospital bill, it is to be credited to any balance charged the county for the recipient's care in excess of the six dollars to be paid from the State fund.

Each county determines annually in consultation with each hospital used by the county department of public welfare the total rate per day to be paid for the hospitalization of assistance recipients.

No payment from the State fund will be made for more than 180 consecutive days of care. It will be the county's responsibility to make provisions for a patient who requires a longer period of hospitalization. If experience indicates that it is necessary in order to protect the State fund for hospitalization, the number of days may be reduced.

No payment will be made from the State fund for a recipient who is hospitalized because of a diagnosis of psychosis or tuberculosis, since the recipient who is hospitalized because of this type of diagnosis will not continue to be eligible for assistance while in the hospital. This statement does not apply in the case of a recipient who is hos-

pitalized because of some other diagnosis, even though he may also be psychotic or have tuberculosis.

Payment from the fund will be made only for hospitalization rendered to an individual recipient in a month for which a payment in his behalf was made into the fund. Payments to the

hospital, however, may be made after eligibility for assistance ceases to exist.

All agencies participating in the plan will benefit by the improved administrative procedures which it provides. Furthermore, better services to clients should be a direct result.

HOME TREATMENT OF TUBERCULOSIS, THE PROGRESS OF AND THE FUTURE RESPONSIBILITY OF LOCAL HEALTH DEPARTMENTS

By H. F. EASOM, M.D.*

Wilson, North Carolina

The tuberculosis hospital is as important as it ever was in the diagnosis, treatment and control of tuberculosis. Newly discovered cases still know little about how the disease should be treated or how to keep from spreading it. There are just as many contacts per active case as ever, and, although overcrowding and poor nutrition are less than in the past, they are still a serious problem in many homes in this State. Mass x-ray surveys and the increase in the number of diagnostic x-ray units used by private physicians and hospitals have resulted in the finding of many early cases of tuberculosis, but you will be surprised to learn that only seven per cent of the cases admitted to the Eastern North Carolina Sanatorium between July 1, 1954, and July 1, 1955, were classified as minimal. Some of the far advanced ones died within a few days after entering the hospital, even though they were admitted as soon as the diagnoses were made. Nine such cases admitted during the past year died within the first thirty days.

The treatment of tuberculosis has undergone great changes during the last ten years and has become much more effective and more complex. Prior to 1945 treatment consisted of bed rest and good food for all cases and

pneumothorax, pneumoperitoneum, phrenic paralysis and thoracoplasty for selected cases. Excisional surgery was seldom done because of the high complication rate. The average length of sanatorium treatment was more than eighteen months and the readmission rate was probably as high as 25 per cent. Pleural effusion and empyema often complicated pneumothorax and made it difficult or impossible to expand the lung. In some cases it was necessary to obliterate the air space by means of an extensive thoracoplasty, but in others the patient had to keep his unexpandable lung and fluid or empyema, with the ever-present danger of infection and bronchopleural fistula. Phrenic nerve paralysis was very popular for many years. When it was first used the nerve was evulsed, causing a permanent paralysis, but later on most cases were done by crushing the nerve, thereby causing paralysis for about six months. Unfortunately, about 20 per cent of these proved permanent, which was undesirable, because it resulted in indigestion for some and in reduced

*Associate Superintendent and Medical Director Eastern North Carolina Sanatorium, Wilson, North Carolina. Presented before Health Officers Section, NCPHA Convention, Winston-Salem, September 22, 1955.

pulmonary function for all cases. Phrenic paralysis was used mainly to supplement pneumothorax or pneumoperitoneum. Pneumoperitoneum was widely used in the South and was gradually being accepted in the northern states when drugs came on the scene. It offered something to the bilateral cavitory case who could not take pneumothorax. It had the advantages of being relatively safe to administer and of causing few late complications. Thoracoplasty was the chief form of surgery. It was used mainly on good chronics and proved to be very safe and effective. The sputum conversion rate following this operation was about 80%.

Health departments and private physicians were, until about one year ago, forced to administer home treatment to new cases. This was due mainly to the lack of sanatorium beds. It was therefore necessary to isolate, educate and treat patients at home for periods of eighteen months or more, while they were waiting for admission. In spite of the best medical and nursing efforts, the results were poor. About one-third of the Negroes died while still on the waiting list, and in many other cases the disease became progressively worse at home. Now that we have more hospital beds and a shorter average length of stay, the waiting period has been eliminated, thus doing away with the need for home treatment prior to hospitalization and reducing the spread of infection to family and friends. However, you will have responsibility for home care after the patients go home from the hospital. All of them need extra rest and a good diet, and many are advised to continue one or more drugs for several months.

About ten years ago streptomycin was discovered and, after carefully controlled animal and human studies, was shown to be very effective in the treatment of tuberculosis. It was soon found, though, that it could cause dizziness, deafness and other toxic reactions and that tubercle bacilli did become resistant to it in a large percentage of cases. Soon afterward para-

aminosalicylic acid, better known as PAS was discovered, and, although it proved to be a weak bacteriostatic drug when used alone, it did, when given with streptomycin, delay the development of resistance. By means of several large studies on chemotherapy it was found that a regimen of streptomycin given in a dose of 1 gm twice weekly and PAS 12 gms daily gave best results, with least evidence of toxicity. The use of pneumothorax, phrenic crush, thoracoplasty and pneumoperitoneum rapidly diminished, and there was a remarkable increase in the use of excisional surgery. In 1952 isonicotinic acid hydrazid, commonly known as INAH, was discovered. It has proven to be the best of the three drugs now available, but, like the other two, it may cause symptoms of toxicity, and tubercle bacilli do become resistant to it. It should usually be given in combination with streptomycin or PAS. Since drugs have been available we have entirely discontinued the use of pneumothorax and phrenic crush, and we seldom try pneumoperitoneum. Thoracoplasty is still occasionally used. Excisional surgery performed under the protection of chemotherapy has come into use on a scale which was not possible prior to the era of chemotherapy.

Any discussion of home care versus hospital care must take into consideration the requirements and complexities of modern diagnosis and treatment of tuberculosis. First of all, a definite diagnosis must be made, and this is extremely difficult to do in some cases. Cancer and other non-tuberculous conditions may look exactly like tuberculosis on an x-ray. Once drugs have been started, it is even more difficult to establish a diagnosis. Good diet, an opportunity to rest without interruption by visitors or family and separation from children are basic treatment requirements. Even these cannot, in most cases, be provided at home. It is helpful for a patient to have some knowledge of tuberculosis in order that he may protect others and so that he may have a better chance to

get well and remain so. This training is more likely to be gained in a tuberculosis hospital than at home. The drug treatment of tuberculosis is not a simple matter. Any of the three most commonly used ones may cause toxic reactions, some mild and others quite serious. It goes without saying that these problems can best be handled in a hospital. There is also the matter of drug resistance, the determination of which is a complicated laboratory procedure. The results may influence the choice of drug combinations and may be even more important at the time of surgery. Surgery is frequently employed and it must, in most cases, be preceded by a period of medical treatment and often by such special studies as the making of planigrams and sensitivity determinations. Such an integrated, specialized program of treatment can be carried on only in a hospital. It is therefore my belief that practically all active cases of tuberculosis should have a period of sanatorium treatment. Selected cases of active primary disease in children where the home conditions are above average and where there are no open adult cases can do well on home treatment. There are some who now favor giving isoniazid to all young children having positive skin tests, and of course this can be done at home. There are a few old people living in good home environment and not exposing young people who can take drugs at home from the beginning. However, it is essential that these patients have very close medical supervision.

In summary, it can be said that health departments and private physicians have always supervised home treatment of tuberculosis cases before and after their sanatorium treatment.

Pre-sanatorium treatment has been extremely unsatisfactory in spite of your best efforts, and, although the results have been better since drugs have been available, they have not been good enough to eliminate the need for sanatorium treatment. A number of sanatoriums have been closed recently, but this does not indicate that home treatment is taking the place of sanatorium treatment. It is the result of the use of more effective forms of treatment which have resulted in the shortening of the average patient's stay in the hospital. Now that the sanatorium can take your cases as soon as tuberculosis is suspected I conceive of your responsibility for home treatment to be about as follows:

1. Some children with active primary disease and a few old persons can have all of their treatment at home under close medical supervision.

2. Many patients can continue extra rest and drugs at home after an adequate period of sanatorium care. Many of these can stop drugs at the time of discharge or within a few months after going home.

3. Patients who leave the hospital against advice will have to be readmitted, treated at home, or sentenced to prison as health law violators.

4. Many patients who have no chance to get well are being kept alive by modern methods. Some of these have negative sputum for long periods and can be discharged to their homes to continue treatment there under strict medical supervision.

5. Some nervous, maladjusted patients are discharged earlier than usual and advised to continue their treatment at home in the hope that they will do better there.

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TUBERCULOSIS CONTROL IN NORTH CAROLINA ACTIVITIES OF THE TUBERCULOSIS CONTROL SECTION, DIVISION OF EPIDEMIOLOGY

By William A. Smith, M.D.

State Board of Health, Raleigh, N. C.

1—GENERAL

The disease, tuberculosis, is as old as recorded history. It was described by Hippocrates, the Greek Physician, in the 5th century, and was probably more prevalent than leprosy up to the thirteenth century. After the thirteenth century the prevalence of leprosy de-

creased markedly.

It appears remarkable that in this country there was no concerted effort to control tuberculosis until about 1904. Fifteen years earlier, however, a Philadelphia physician announced that, "tuberculosis is a question for our municipalities to deal with". In 1892 a

society to oppose tuberculosis was organized in Pennsylvania and in 1898 the leader of this society suggested that a national association be formed. Although there was little enthusiasm to this suggestion, interest in prevention and treatment continued and by 1904 the National Tuberculosis Association was organized.

In this state in the same year Dr. Richard Lewis, Secretary, North Carolina State Board of Health, devoted nearly half of his annual report to the State Medical Society to the tuberculosis problem. Dr. Lewis cited the need for more education of the public mind on the subject and the establishment of a society specifically organized to fight the disease. Following are excerpts from the report of Dr. Lewis:

"Tuberculosis continues to be our most fatal disease. Experience has demonstrated that much can be done for its prevention. We should therefore make an earnest effort to check its ravages as far as possible. But how to accomplish this in actual practice to more than a superficial extent is the question. The answer to this question is by the thorough education of the public mind on the subject.

"The methods usually resorted to for the education of the public sentiment are tuberculosis congresses, the organization of antituberculosis societies, public addresses, newspaper articles, the distribution to the individual of literature bearing on the subject and the establishment of special sanatoria".

At that time in the entire United States there were only 9,000 hospital beds for the treatment of this disease. During 1904 there were 150,000 deaths from tuberculosis in the United States, and an estimated one million five hundred thousand active cases. The nine thousand beds for the treatment of this large number of cases was a pitiful number for the treatment of over a million persons.

Our own statistical records are inaccurate for the 1904 period and it was only in 1916 that North Carolina was accepted in the death registration area. In 1916 there were 3577 deaths from

tuberculosis in this state. Case reporting at that time was not complete but it is estimated that there were at least 35 thousand active cases in the State. It can readily be seen that in 1904 when Dr. Lewis made his report to the State Medical Society, tuberculosis was the most fatal disease and that the problem was a grave one.

Since 1916 there has been a steady decline in the number of deaths.

Prior to 1908 sanatoria for the treatment of tuberculosis were principally located in the mountainous areas and principally around Asheville. The first State sanatorium was built at McCain and opened on November 3, 1908. At the present time there are 1,945 State beds and these are sufficient for present State needs. The State Prison Division is constructing a building with 139 beds at McCain. In the Veterans Administration facilities there are 1,009 beds and in mental institutions 339.

The people of this State are well served by hospital facilities as well as by facilities for chest examination. There are three four-year medical schools in the State and each with a well-staffed out-patient clinic. Three of the four state sanatoria have out-patient clinics and the fourth is organizing a clinic.

There are sixty-nine county or district health departments and 32 of these have tuberculosis clinics. X-Ray services for making the 14 by 17 X-ray plate are available in 73 of the 100 counties, but not available in 27. In the counties with no facilities for taking the large plate, such plates are either taken at local hospitals or at the district headquarters of the health department, provided the county is a part of a district. At most of these health departments there is no charge for this service. In addition mobile X-ray units are operated by 12 counties and two counties have a portable machine which is used particularly for industry. The State Board of Health operated six mobile X-ray units and a mobile 14 by 17 retake trailer up to January 1955 and now operates five units and a retake trailer.

Since 1904 when Dr. Lewis brought attention to the severe tuberculosis problem there has indeed been progress both in hospitalization and case finding.

2—TUBERCULOSIS CONTROL PROGRAM

In order to be effective, a tuberculosis program must have available certain services. They are case finding, clinical, nursing, hospital, health education, laboratory, rehabilitation, vital statistics and welfare. All these services are available in many of our communities; many do not have such services as health education, local laboratory service or a tuberculosis clinic which is attended by a specialist in tuberculosis. The lack of X-ray facilities in those counties which do not have such facilities is a handicap to case finding for the X-ray is the most efficient and widely used apparatus for finding tuberculosis.

The Board of Chancellors of the American College of Radiology has made these recommendations:

"Chest X-Ray Surveys for the detection of communicable pulmonary disease are in the public interest. They should be conducted as part of a program to control and eliminate pulmonary tuberculosis.

"Routine admission hospital survey x-ray examination of the chest is desirable as a protective measure in large general hospitals, mental institutions and other domiciliary units in which adults are housed in close propinquity, providing the x-ray reports reach the patients' charts promptly, and the attending physicians take suitable steps for prompt completion of diagnosis and necessary treatment."

Three major sources of case finding are recognized. First, the discovery of the case by the physician in private practice; second, the routine examination of contacts either by the family physician or out-patient clinics or health departments; third, mass or community wide chest x-ray surveys.

Tuberculosis cases are detected through:

- a. Examination of hospital in-patients ----- 44%
- b. Outpatient clinics and offices of physicians ----- 28%
- c. Mobile x-ray surveys ----- 18%
- d. Routine x-ray of contacts ----- 6%
- e. Death reports ----- 3%
- f. All others ----- 1%

(From Health Dept. Minneapolis, Minn.)

3—PERSONS TO BE X-RAYED—EMPHASIS ON CERTAIN ECONOMIC GROUPS.

In our x-ray surveys we have emphasized certain groups for examination. These are the older age group, the Negro population and the low economic group. Such groups have been emphasized for the reason that these groups have shown a consistently high prevalence. As our standard of living continues to rise, crowding will be less and this should be followed by an improvement in tuberculosis morbidity in the low economic group.

In surveying the population, however, the higher economic population should by no means be overlooked. In a chest x-ray survey of a large mid-western city the number of deaths in the area surveyed suggested there would be approximately 20 times as much tuberculosis in the lowest economic group as in the highest; and known cases in the area suggested there would be three times as much, but the final analysis showed the estimated distribution of undetected cases to be only one and a half times as much.

In our health education activities prior to and during a survey we endeavor to reach all the population.

Each year it is estimated that about 13,000,000 people in the United States receive chest X-ray examinations for the purpose of determining if chest disease, particularly tuberculosis of the lung, is present. In North Carolina over 500,000 persons, not including those persons examined by private physicians and hospitals, had such examinations in 1954. The persons examined by our mobile units are persons who stop by the unit casually, or through health

education measures conducted during the survey visit the unit.

The tuberculosis case found by mobile X-ray unit is generally in a less advanced stage than is the case which seeks medical treatment. The following observations were made by the United States Public Health Service. In survey cases:

- 37% were minimal
- 47.4% were moderately advanced
- 15.6% were far advanced.

In non-survey cases:

- 21.7% were minimal
- 45.5% were moderately advanced
- 32.8% were far advanced.

It was also found that the chance of a survey case dying within four years was 1 out of 10, whereas the chance of a non-survey case dying was 1 out of 3.

The three methods of case finding already mentioned are independent of each other; neither can replace the other; each is an important part in the general case finding procedure.

4—MISSION OF THE TUBERCULOSIS CONTROL SECTION.

The mission of this section is essentially

that of tuberculosis case finding. We also maintain close liaison with the Heart and Cancer sections of the State Board of Health. A daily report is furnished the Heart section showing all abnormal cardio-vascular findings detected in our chest surveys, and a report showing tumor suspects is periodically furnished the Cancer section. These reports give the name, address, age, sex, of the patient, and the name and address of the family physician.

In addition to conducting chest X-ray surveys, this Section also furnishes on loan certain X-ray equipment to health departments and other agencies.

X-ray machines are on loan at the Duke Medical School hospital, Durham; the Baptist hospital, Winston-Salem; and the Union Memorial Hospital, Monroe. These machines are used for the purpose of making chest plates on hospital admissions and clinic cases.

Equipment other than X-ray machines is on loan at health departments in Charlotte, Winston-Salem, Raleigh, and at the State Hospital, Raleigh.

Personnel and Equipment.

Personnel consists of:

	<i>Part time</i>	<i>Full time</i>
1. Doctors, one Director full time; two film readers, part time -----	2	1
2. X-ray technicians, full time; one Chief -----	-	8
3. X-ray technicians, dark room, part time -----	1	-
4. Clerks, field 2; central office 2, full time -----	-	4
5. Health educator, part time -----	1	-
6. Consultant nurse, part time -----	1	-
7. Others, supporting services as statistical, mailing room, office of Chief nurse, part time -----	5	-
Total, full time and part time -----	10	13
TOTAL—		23

Equipment owned by the Section is:

1. Mobile X-ray units, tractor trailers, 5 active and stand-by 1 -----	6
2. Office trailer -----	1
3. Follow-up trailer with 14 by 17 X-ray unit -----	1
4. Carry all -----	1
5. Photoroentgen units 70 mm. on loan -----	3
6. Other miscellaneous equipment such as: 4 by 5; 70 mm. and 14 by 17 view boxes to county and State agencies and two 4 by 5 cameras on loan.	

Due to inadequate funds it has been necessary to reduce the number of mobile units on active service from 6 to 5. It is hoped that the 6th unit, now being used as a standby unit can be used actively during the coming year. The loss of one unit means a reduction of 30 to 40 thousand persons for x-ray during a 12 month period.

5—ACTIVITIES DURING THE FISCAL YEAR 1954-1955

During the fiscal year our field units made 241,055 70 mm. chest plates and about 3% of persons examined required a 14 by 17 plate to confirm the diagnosis made from the miniature film. Those persons examined by our mass x-ray group were re-examined by our follow-up technicians, and those who had the miniature plate made during special surveys were re-examined by health department personnel. About 3% of the persons x-rayed with the miniature film are requested to return for re-examination and hence during the period about 7,000 persons returned for the 14 by 17 plate.

During the fiscal year 1953-1954 250,968 persons were x-rayed and the decrease of 9,913 persons during the fiscal year 1954-1955 shows the result of the loss of one unit for the six

month period from January 1, 1955 to June 30, 1955.

The 1955 schedule is particularly severe and a heavy demand on our personnel which is just sufficient to operate the five units and follow-up 14 by 17 trailer. During the fiscal year 1954-1955 mass surveys were conducted in six counties and special surveys were conducted in 26 counties; two colleges; schools in the Washington-Tyrrell district and also in two State mental institutions.

The schedule for surveys has been prepared for 1956-1957 and 7 counties and districts have been scheduled for special surveys in 1958. It is our desire to schedule counties routinely year in and year out and the 7 counties scheduled for 1958 have expressed a wish for such surveys.

Since our surveys began in July 1946, we have conducted 2 separate mass surveys in 22 counties and 3 separate surveys of this type in 3 counties. Edgecombe county was surveyed for the third time in January 1955. The third survey was particularly interesting in that the number of persons found with lung pathology was much greater than the number detected with lung pathology during the 1951 survey. A tabulation comparing the surveys follows:

*EDGECOMBE, MASS CHEST X-RAY SURVEYS

	1951	1955
Number days in survey	24	24
Number units used	5	3
Number persons X-rayed	14,128	13,625
White people X-rayed	7,909	8,185
Per cent White people X-rayed	56.0	60.1
Negroes X-rayed	6,204	5,390
Per cent Negroes X-rayed	43.9	39.6
Number persons recalled for further examination (14x17 plate) —result of miniature film findings	405	396
Recalls, per cent	2.86	2.90
Number recalls who did not return for re-examination	40 (9.9%)	6 (1.5%)
Persons showing lung pathology	57 (36-White (21-Negroes)	141 (69-White; 67-Negroes; 5 records incomplete)

Active and probably active tuberculosis of the lung

	22 (11-White) (11-Negroes)	41 (20-White; 21-Negroes)
a. "New" active cases—19	(White-10) (Negroes-9)	38 (18-White) (20-Negroes)
b. Known active cases 3	(White-1) (Negroes-2)	3 (2-White) (1-Negro)
	<hr/> 22	<hr/> 41

Inactive pulmonary tuberculosis and suspected tuberculosis

	31 (24-White) (7-Negroes)	87 (47-White) (40-Negroes)
Non-Tuberculous pathology	4 Tumor susp. (3-N.) Undiag. (1-W.)	8 Sarcoid 3 (3-N.) Tumor suspect 4 (4-N.) Undiag. 1 (1-W.)
		<hr/> 8

New and hitherto unknown pulmonary tuberculosis cases

recommended for hospital	11 (White-5) (Negroes-6)	16 (White-6) (Negroes-10)
--------------------------	-----------------------------	------------------------------

Old or known cases pulmonary tuberculosis

	1 (Negro-1)	12 (White-1) (Negroes-11)
--	-------------	------------------------------

* The survey included Edgecombe county less the city of Rocky Mount. White population of county 48.1%, Negro population 51.9%.

Pertinent findings in 1955 as compared to 1951 are:

A decrease of 503 persons examined in 1955 as compared to 1951.

16 new hospital cases as compared to 11 in 1951.

141 persons showed chest pathology as compared to 57 in 1951.

38 new active cases as compared to 19 in 1951.

87 inactive and suspected tuberculosis as compared to 34 in 1951.

3 sarcoid cases, two brothers and 1 other case; none in 1951.

In the 1951 survey 40 persons of the 405 recalled for 14x17 X-ray plate examination did not respond and in the 1955 survey only 6 persons did not respond. The follow-up in 1951 was 90.1% and in 1955 98.5%. Had the 40 persons returned for re-examination in the 1951 survey and all 40 had shown chest pathology the total "suspects" in 1951 would have been 97; and if the 6 persons in the 1955 survey had shown

chest pathology the total "suspects" would have been 147. There would still have been 50 more suspects in 1955 as compared to 1951.

In 1951 the health department was headed by a part time health officer, and in 1955 by a full time health officer. The publicity campaign in both surveys was thorough but was apparently more effective in 1955. The 1955 publicity program as submitted by the health officer consisted of:

a. Motion picture films on tuberculosis; these were shown to 6,000 to 7,000 persons.

b. Film strips shown to about 9,000 persons.

c. Television appearances by the health officer, 1 time.

d. Radio talks and spot announcements, 55.

e. Press releases, 30.

f. Meetings with persons interested in tuberculosis control, audience 3,000.

g. Letters to citizens with reference

to the survey and home visits to families, 11,000.

h. Pamphlets concerning tuberculosis distributed in the county, 15,000 and posters distributed 300.

The findings of both surveys indicate that the older age group responded, Chart No. III.

6—MORBIDITY AND MORTALITY.

A. General Dr. James E. Perkins, managing director, National Tuberculosis Association, in the Bulletin of the Association, recently pointed out that:

"100,000 new cases of active tuberculosis occur each year.

"400,000 active cases are living today, 250,000 of these are registered and known.

"150,000 cases are still unknown but are projected on the basis of accurate surveys, etc.

"1,200,000 cases of significant tuberculosis stand in the need of observa-

tion; these include the 400,000 active cases.

"The death rate has dropped markedly.

"The morbidity (case) rate is at a standstill in some areas it has fallen only slightly in most. (Chart No. I & II).

"Finally about 50 million people still react to tuberculin, that is they harbor the tubercle bacillus within their bodies—a situation safe for the most part but explosive under conditions of strain and stress. Out of such a group of people a great many cases of tuberculosis will eventually emerge."

In 1954 there were 311 deaths from tuberculosis in North Carolina. In the United States (Continental) there were 16,920 deaths. The number of deaths as well as death and case rates for NC and US as a whole are tabulated below:

TUBERCULOSIS DEATHS (ALL FORMS) WITH RATES PER 100,000 POPULATION:

UNITED STATES AND NORTH CAROLINA, 1916-1954.

YEAR	UNITED STATES		NORTH CAROLINA	
	NUMBER DEATHS	RATE PER 100,000	NUMBER DEATHS	Rate Per 100,000
1916	101,396	141.6	3,577	142.3
1946	50,911	36.4	1,182	32.5
1947	48,064	33.5	1,128	30.4
1948	43,833	30.0	949	25.0
1949	39,100	26.3	972	25.2
1950	33,959	22.5	748	18.4
1951	30,863	20.1	630	15.3
1952	24,621	15.8	543	13.0
1953	19,870	12.6	402	9.5
1954	16,920	10.5	311	7.3

The North Carolina death rate has been below the National rate since the late 1930's. The North Carolina death rate is lower than 31 other states. These states are:

Maine	South Carolina	Missouri
Rhode Island	Texas	Nevada
South Dakota	New York	New Mexico
California	New Jersey	Maryland
Massachusetts	Illinois	Alabama
Oklahoma	Louisiana	Arkansas
Vermont	West Virginia	Kentucky
Colorado	Mississippi	Tennessee
Ohio	Delaware	Arizona
Georgia	Pennsylvania	
Montana	Virginia	

The number of deaths is no longer considered an accurate measure of the importance of the tuberculosis problem. The number of reportable cases occurring in a given area over a given period is considered a better index. In 1954 there were 1459 active tuberculosis cases of the lung reported in North Carolina. In the US as a whole 79,097 new active tuberculosis cases, all forms, were reported.

In North Carolina in 1945, 1079 active cases of the lung were reported. Our mobile x-ray surveys began in July 1945 and a year later were intensified. It is of interest to note that beginning with this activity there was a steady rise in active cases reported, showing that mobile X-ray surveys are of considerable value in case finding. Active tuberculosis cases of the lung and the total number of tuberculosis cases reported to the State Board of Health by physicians and clinics from 1945 to and including 1954 are shown below:

NORTH CAROLINA 1945-1954		
Year	No. active pulmonary tuberculosis cases reported	Total cases reported
1945	1079	3392
1946	1129	3466
1947	1163	3591
1948	2029	3274
1949	2123	3402
1950	1923	3653
1951	1743	3105
1952	1430	2326
1953	1350	2001
		(Min. inact. not reported)
1954	1459	2013

The Negro death and morbidity (case) rates still remain high. In 1954 the white death rate of 4.7 persons per 100,000 population compares with the lowest death rate among States in the US. In 1953 the 5.0 per 100,000 rate in NC compared with:

Wyoming	3.9
Iowa	4.6
Idaho	4.8
Kansas	4.9
North Dakota	5.0

The Negro rate for 1954 is 14.7 which is 7.5 per 100,000 lower than 1953, and a 33.8% decrease over 1953. The white rate of 4.7 is a 6% increase over 1953.

The morbidity (case) rates and mortality (death) rates for the past 5 years are noted below:

MORBIDITY—NORTH CAROLINA TUBERCULOSIS cases, all forms 1950-1954

Year	No.	Rate	White	Rate	Other	Rate
1950	3653	89.9	2072	69.5	1581	146.6
1951	3105	75.3	1870	61.6	1235	113.5
1952	2326	55.7	1346	43.7	980	89.4
1953	2001	47.4	1136	36.4	865	74.4
1954	2013	47.1	1088	34.4	925	83.3

MORTALITY—NORTH CAROLINA TUBERCULOSIS deaths, all forms 1950-1954

Year	No.	Rate	White	Rate	Other	Rate
1950	748	18.4	297	10.0	451	41.8
1951	630	15.3	264	8.7	366	33.6
1952	543	13.0	208	6.8	335	30.6
1953	402	9.5	157	5.0	245	22.2
1954	311	7.3	148	4.7	163	14.7

From this tabulation it will be seen that in the last five years there have been a total of 13,098 cases of tuberculosis reported to the State Board of Health for the first time and of these 7,905 were active or hospital cases or required close observation. Many of the inactive cases undoubtedly became active cases and were either hospitalized or received home treatment. Records from county health departments show that 73,426 nursing visits were made in behalf of tuberculosis cases, suspects and contacts, and the total number of visits to diagnosed tuberculosis cases was 28,031 also that the total number of diagnosed tuberculosis cases visited during the year was 9,107.

The new tuberculosis drugs are saving many lives. Deaths in the past ten years have decreased from 1262 to 311, but the yearly number of new cases indicates that there must be no relaxation in efforts to combat this disease. There is no effective vaccination such as there is for small pox, typhoid, or

diphtheria. A poor economy, bad housing, poor hygiene, indifference in the support of the services which are engaged in control could result in a spread of this disease.

7—SUMMARY.

The Tuberculosis Control Section has now been in operation since January 1945. Chest X-ray surveys began July 1945 and for the fiscal year 1945-46 operations were limited. However, beginning July 1946 operations were accelerated through aid given by the Federal Government. For the 8-year period ending June 30, 1954 over two million four hundred thousand persons have been X-rayed and over ten thousand persons have shown X-ray evidence of lung disease. Had the follow-up of those persons, who showed evidence of lung disease, from the miniature film, been 100% the number of tuberculosis cases as diagnosed by the large or 14 by 17 film would have been greater, probably by ten or fifteen per cent.

Fifty-two per cent of the tuberculosis cases we find through chest x-ray surveys show active or probably active disease.

Several tuberculosis authorities have expressed opinions as to the value of chest X-ray surveys. Dr. Robert J. Anderson, United States Public Health Service, in the Journal American Medical Association, February 23, 1952, says, "Since the aim of mass chest X-ray surveys is to find significant tuberculosis in the screened population, the question of how much active tuberculosis found is fundamental . . . the information we have indicates that about one out of every 1,000 persons screened will have active tuberculosis that is clinically recognizable. Our experience indicates, too, that many of those found with inactive and questionably active disease will later prove

to have definitely active tuberculosis."

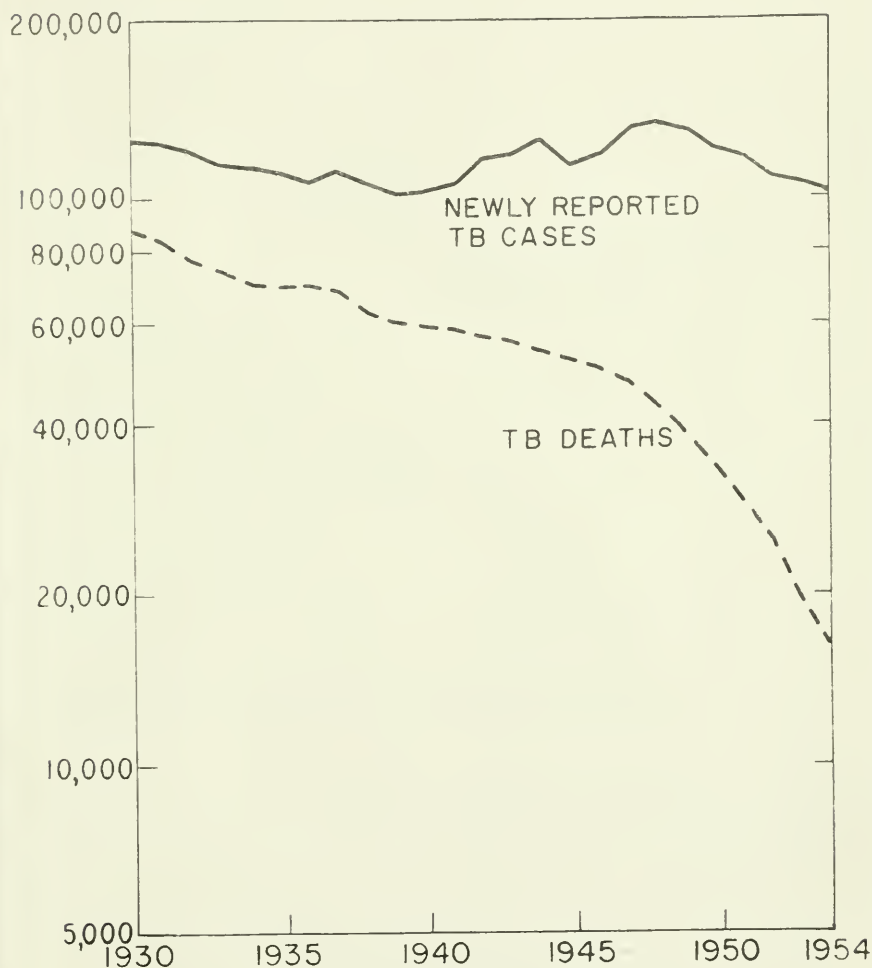
Drs. Jacobson and Adler, American Review of Tuberculosis, June 1954 noted that "One of the greatest benefits of the mass survey has been to demonstrate to both the medical profession and the public the existing high prevalence of tuberculosis and the need of a continuous, efficient case finding program in each community."

Our policy is to continue chest x-ray surveys and to emphasize the x-ray examination of all the population, and to particularly stress the importance of this type of examination to those groups who show a high prevalence, and such groups are those persons who are subjected to crowding; also the older age group and Negro population.

To conduct a tuberculosis control program effectively, cooperation among services is necessary and adequate funds must be available to support services. Cooperation among services has always been of a high order, but present funds are not adequate to employ the full field personnel to operate all our x-ray equipment and also conduct other case finding procedures. The present number of male technicians is not sufficient to move all transportation from one location to the other at the same time, and whenever there is a change of survey locations transportation must be moved in sections. Such a movement requires several days. Our male technicians not only take x-ray pictures on the mobile trailers but also operate the tractor-trailers.

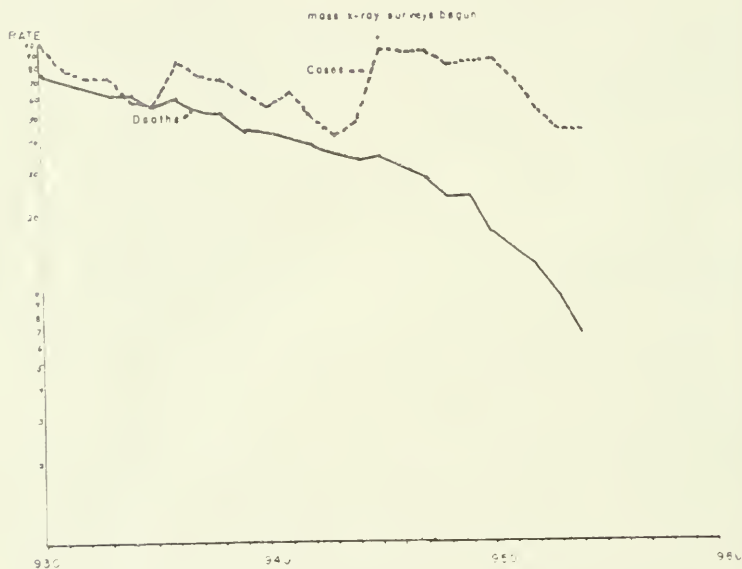
During the fiscal year 1953-54 the cost of the examination of one person was sixty-one cents. This cost includes all services, but does not include depreciation of equipment. The amount, sixty-one cents, is about the cost of a large x-ray plate which is sixty cents. Our endeavor is to make every dollar of the public money count.

CHART I

NEWLY REPORTED TUBERCULOSIS CASES AND
TUBERCULOSIS DEATHS, UNITED STATES, 1930-1954

Tuberculosis Program, Division of Special Health Services, February 1955

CHART II
TUBERCULOSIS CASES AND DEATHS PER 100,000 POPULATION
NORTH CAROLINA, 1930-1954



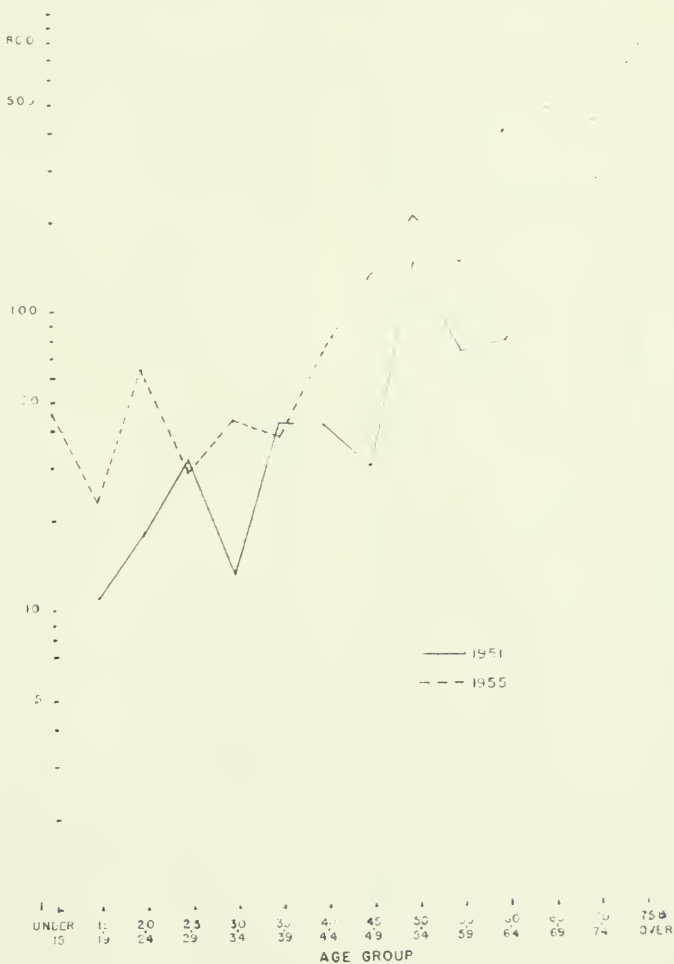
SOURCE ANNUAL REPORT OF THE PHSS, PART I 1954

PHSS 9/17/54

CHART III

AGE SPECIFIC TUBERCULOSIS SUSPECT RATES PER 10,000 PERSONS X-RAYED
 EDGECOMBE COUNTY TUBERCULOSIS SURVEYS, 1951 AND 1955

NUMBER OF SUSPECTS
 PER 10,000 PERSONS X-RAYED



THE NORTH CAROLINA TUBERCULOSIS ASSOCIATION REPORTS AND LOOKS TO THE FUTURE

By C. Scott Venable, Executive Director,
North Carolina Tuberculosis Association

Legend has it that Janus, the god for whom January is named, had two faces—one looking forward into the new year and the other backward into the old one. This mid-century point in the history of the North Carolina Tuberculosis Association offers opportunity for a similar feat—to look back over the first fifty years and forward into the future.

Historically, tuberculosis associations were based upon the principle of free and direct participation by the people in designing their own welfare. It was believed that, if the people were sufficiently informed about tuberculosis, they would demand and easily obtain whatever was necessary for its prevention and control.

Looking backward, we see this faith in the people rewarded. In the early history of the North Carolina Tuberculosis Association are accounts of its members' promoting the establishment of a state sanatorium and the passing of legislation requiring isolation of tuberculous prisoners and of their producing materials designed to further inform the public about the disease.

This was merely the beginning. An all-out campaign followed immediately to organize local committees in all the various sections of the State. Even then the value of local organizations dealing directly with the people was recognized.

As the Association's income increased, appropriations were made accordingly, making available certain necessary items and demonstrating the value of specific services. Some of the early appropriations were: for the production of a film on TB; for a study of tuberculosis in a designated area of the State; for an X-ray machine in the State Sanatorium; and for public health nursing in the State. Not only

was public health nursing demonstrated by the Association, but it also employed the first health education workers and a consultant clinic physician to work out of the Sanatorium.

Significant in these early demonstrations is the fact that, as soon as the value of an activity had been proved, it was taken over by the official agency, thus releasing the Association's funds to explore new fields. This policy, begun years ago, continues to serve the best interests of the people and the agencies involved.

With this type of cooperation, outstanding gains have been made. The Association's emphasis on prevention and control has helped in achieving a phenomenal reduction in the death rate. The people's knowledge of the disease has been greatly enhanced. There is better and more widespread reporting, and larger sums are pouring into research.

At the present time the North Carolina Tuberculosis Association is chiefly concerned with organization, fact-finding, rehabilitation, case-finding and health education.

The NCTA's organizational policy is to organize every area in the State into units for controlling tuberculosis. Committees, where feasible, are developed into associations and county associations, where practical, are consolidated into district associations. Every opportunity is grasped to strengthen existing organizations.

A program of tuberculosis control must be based on facts. This fact-finding is continuous, not only to get additional information but also to keep the basic information up to date. It is only when the facts are in and analyzed that a constructive program can be planned.

Rehabilitation is a responsibility of the community and State. It is accomplished through teamwork among agencies interested in the welfare of the patient. In rehabilitation the North Carolina Tuberculosis Association is continuing to work with agencies and to concentrate on such objectives as: promoting a better understanding of why rehabilitation is so important in a TB control program; encouraging affiliates to initiate conferences among community agencies for the purpose of clarifying their programs and limitations in working with problems of TB patients and families and furthering cooperation in meeting patient needs; promoting State and local participation in the annual rehabilitation institute, co-sponsored by eight agencies; and seeking appropriations from the North Carolina Legislature when needed to improve rehabilitation programs in the State.

The policy and program regarding case-finding are to continue to promote mass X-ray surveys in cooperation with the N. C. State Board of Health, with special emphasis on high prevalence areas and among selected groups. With the cooperation of other agencies, the association is stressing the development of additional hospital admission X-ray programs and attempting to improve the effectiveness of existing ones. The NCTA, in cooperation with other agencies, will participate in a communitywide tuberculin-testing program in one of North Carolina's counties. This emphasis on case-finding will continue as long as the estimate of unknown cases remains so high and certainly until the newly discovered cases are found in an early stage.

The area in which tuberculosis associations have made their greatest contribution to tuberculosis control is health education.

Tuberculosis is both an individual problem and a community responsibility. For this reason the Association's endeavors are aimed toward motivating people to act on individual health problems toward obtaining community action and cooperation in solving pub-

lic health problems concerned with the prevention and control of tuberculosis.

Great advances made in all areas of tuberculosis control testify that people do demand action and cooperate once they become aware of the needs and problems. In its health education program last year the Association provided consultation for improvement of TB programs; intensified interpretation of program to boards of directors; promoted community organization for solving health problems; aided in teaching basic facts about tuberculosis to adults and school children by promoting the "Inside Story" program and the School Press Project; intensified efforts to keep physicians informed of new developments in tuberculosis; encouraged the use of educational materials stocked by the NCTA and supplied at cost; helped plan in-service training programs on tuberculosis and health for teachers; emphasized the use of radio and television as media for interpreting the tuberculosis control programs; supplied interested college teachers with materials on tuberculosis and health for classroom use; and furnished units of work, supplementary aids and consultation to high schools upon request. It is to its educational program with its varied aspects that the State Association owes most of the credit for a steady movement of progress.

As the first step is taken into the second half-century it is notable that an unfinished task has been left for completion. In 1882 Koch discovered the germ that causes tuberculosis. Almost 75 years later there is still no specific drug that destroys the germs within the body without damaging body tissue and no specific immunizing agent. The need for continued research is thus thoroughly established.

Last year in North Carolina 2,013 new cases of tuberculosis were reported. The five-year average from 1950 to 1954 was 2,620. This means that within the last five years 13,100 new cases have been reported. Each person infected with tuberculosis germs is a potential patient. Because X-rays do

not determine the number of persons infected, the arrow of the future points to large-scale tuberculin testing to determine the extent of the tuberculosis problem.

The future program of the North Carolina Tuberculosis Association will be keyed to the present and future problems. Changing trends demand changing emphasis. One requisite for effective functioning is that the organization remain unhampered in its efforts to explore new fields and demonstrate new methods and techniques.

Listed below are the amounts expended to carry out the 1954-55 program activities of the North Carolina Tuberculosis Association:

EXPENDITURES BY SERVICE

Health Education	\$29,742.21
Rehabilitation	6,781.99

Administration	14,154.55
Seal Sale	7,013.87
Organization	17,855.95
Total Expenditures	\$75,548.57

When listed as specific items, the NCTA financial statement shows a disbursement of \$36,043 on professional salaries; \$14,552 on clerical salaries; \$12,331 on travel; \$1,664 on publications, news letters, printing and dissemination of information. Other budgeted items were expended for training institutes, program conferences, the NCTA annual meeting, scholarships, payment on and maintenance of the NCTA headquarters, telephone, postage and express, dues and subscriptions, office supplies and equipment, repairs, audit, insurance and bonding, bank exchange, Social Security, health insurance and annual physical examinations for employees.

CONFERENCE 8, 9, 10 DECEMBER

Special Education of Handicapped Children

O'Henry Hotel — Greensboro

Sponsored by:

Division of Special Education
N. C. Department of Public Instruction
The North Carolina Health Council
Nemours Foundation
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Greensboro City Schools
National and State specialists as speakers, consultants and panel directors.

Purpose of the Conference

1. To study the characteristics of hand-

icapped children

2. To study the needs and problems in educating handicapped children
3. To appraise the educational and medical services available in North Carolina to handicapped children
4. To plan ways of coordinating educational and medical services for the handicapped children of the State
5. To develop understanding, interest, and support necessary to provide educational services for all handicapped children

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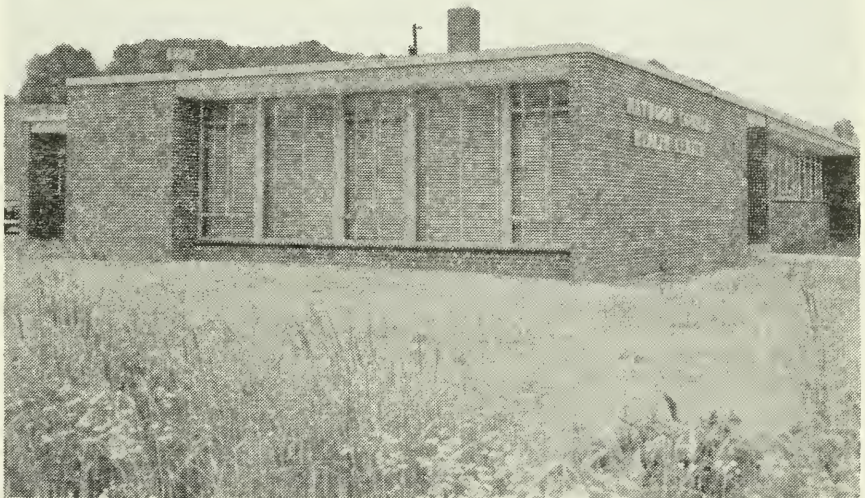
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HIGHLIGHTS FROM THE EARLY HISTORY OF THE NORTH CAROLINA TUBERCULOSIS ASSOCIATION

By Dr. Lynwood E. Williams, President,
North Carolina Tuberculosis Association

During this fiftieth anniversary year of the North Carolina Tuberculosis Association it seems fitting to point up some of the highlights in its early history and to pay homage to some of the State's leaders who were pioneers in the movement for tuberculosis control.

According to this history, tuberculosis work in North Carolina may be said to have had its beginning in the sanatorium movement. The mountains

of the State were considered particularly suited to this purpose, fulfilling all the then-known concepts of treatment. History also records that the Indians set aside the region around Asheville as a neutral ground to which they brought their sick. It is not surprising then that as early as 1800 the white man began to take advantage of this healthful climate. This set the stage for a movement which made the area

the mecca toward which the faces of many who were afflicted have been turned.

It was in this region in the early 1870's that a sanatorium for the care of the tuberculous was established. It was the first such institution in this country. Although this pioneer sanatorium movement has received little recognition by historians of the great battle against tuberculosis, it nevertheless aroused hope in the hearts and minds of men the country over and perhaps served as a model for others. There is no doubt that it helped to inspire the medical men, particularly in North Carolina, to continue their work in tuberculosis and to keep the camp-fire burning brightly, until such a time as they were able to organize themselves into a society whose specific objective was to conquer tuberculosis.

Despite the early sanatorium movement, there was still a lack of facilities for the proper treatment of tuberculosis and a lack of knowledge of the nature of the disease on the part of the general population as well as on the part of general practitioners. It became immediately obvious that, if the terrible death toll from the disease was to be cut, drastic educational measures would have to be undertaken.

Thus, in 1904, Dr. Richard H. Lewis, secretary of the North Carolina State Board of Health, devoted nearly half of his annual report to the tuberculosis problem, citing the need for more education of the public mind on the subject and the establishment of a society specifically organized to fight the disease. This report was delivered to the joint session of the North Carolina State Board of Health and the North Carolina Medical Society at their annual meeting in Raleigh in May, 1904. The joint session adopted a resolution asking every member of the Society and the Board of Health and every physician in the State to use every effort, professional and personal, to promote the fight against tuberculosis. Dr. Lewis was delegated to launch an educational campaign at once, di-

rected to the general public, about the disease.

Impetus was given to the emphasis being put on tuberculosis in North Carolina when in the same year (1904) tuberculosis experts held a meeting in Washington, and a meeting to discuss plans for the organization of a national society to fight tuberculosis was held in Baltimore. Some of the medical men of the State attended the Washington meeting and were prominent in the national organization movement in Baltimore. They continued to fan the organizational flames at home.

On May 30, 1906, their dreams were realized. A committee, appointed by Dr. Edward G. Register the previous year to consider the advisability of forming a State Society for the Prevention of Tuberculosis, made its report, stating that it was ready to organize. A report of the organizational meeting which took place that same day follows:

Pursuant to a call issued by a committee appointed by the president of the State Medical Society, under resolution offered at the 1905 session, a number of the medical gentlemen in attendance on the fifty-third annual meeting of the Society at Charlotte, N. C. May 30, 1906, met together and organized the above named association (the North Carolina Association for the Prevention of Tuberculosis.)

A constitution was adopted and directors elected. On the following afternoon, the directors met and elected Dr. M. L. Stevens president and Dr. Ben K. Hayes secretary. Dr. Charles A. Julian was elected first vice-president and Dr. Albert Anderson second vice president.

Thus was launched the first organized attempt in North Carolina to control tuberculosis.

The intensified work of medical men and the educational campaign so recently launched began to have their effects in 1907. The General Assembly that year enacted a bill establishing a State sanatorium, which opened its doors to patients on November 6, 1908.

The Legislature also passed a bill requiring isolation of tuberculous prisoners.

At the meeting in 1908 the group was concerned about the lack of effective work being done by the Association. The need for leadership was becoming apparent, and the Association, through the State Board of Health, asked the 1909 General Assembly for enabling legislation permitting them to have a paid worker. The Legislature ratified a bill giving the State Board of Health authority to name as a special assistant to the state health officer the secretary of the State Association for the Prevention of Tuberculosis.

As the newly employed worker of the Association, Dr. Julian became this special assistant. He made an inspection of the new State sanatorium and found it to be in such an unsanitary condition that, as a result of his report to the State Board of Health, the institution was closed and did not open again until the following year.

Events now followed in rapid succession. During the year 1910 a resolution was adopted asking the 1911 General Assembly to appropriate more money for tuberculosis work. A special campaign to organize local associations was undertaken. In Dr. Julian's letter to physicians asking them to form committees, he advised them to place as many laymen on the committees as possible. Thus lay participation was initiated. Also during the year educational pamphlets and bulletins were published and distributed by the State Department of Public Instruction, and the first campaign for the Sale of Christmas Seals was begun.

Apparently the State Association for the Prevention of Tuberculosis lagged in its activities from 1911 until 1923. It was then that a group known as the State Red Cross Seal Commission appeared and assumed the responsibility for conducting the seal sale throughout the State. Mrs. C. C. Hooks of Charlotte was chairman of the group and Dr. McBrayer was elected executive secretary in 1914.

There was a steady yearly increase in the proceeds from the seal sale, and in 1917 the directors met and made the following appropriations: (1) \$1,250.00 for the development of a tuberculosis film to be worked out in conjunction with the Sanatorium; (2) \$1,000.00 towards a study of tuberculosis in Roanoke Rapids; (3) \$500.00 on the salary of a director of public health nursing for the State; (4) \$2,500.00 to purchase an X-ray machine for the Sanatorium; (5) \$180.00 to the nursing service in Raleigh. Other funds were authorized to be paid to towns where public health nursing service could be established.

In 1920 the name of the organization was changed to the North Carolina Tuberculosis Association, and it was incorporated as such on July 5.

So goes the early history of the North Carolina Tuberculosis Association. Listed among its organizers and supporters are such names as Mrs. Gordon Finger, Charlotte; Mrs. Charles R. Whitaker, Hendersonville; Dr. L. B. McBrayer, Sanatorium; Mrs. C. C. Hooks, Charlotte; Mrs. Cuthbert Martin, Wilmington; Mrs. W. N. Hutt, Candor; Mrs. T. D. Jones, Durham; Dr. W. L. Dunn, Asheville; J. L. Ludlow, Winston-Salem; Mrs. Mark Quinerly, Greenville; Mrs. S. H. Brown, Oxford; Mrs. J. L. Wetmore, Arden; Mrs. R. C. Warren, Gastonia; Dr. Charles L. Minor, Asheville; and a host of others too numerous to mention.

As the title indicates, this has been an attempt to highlight the early history of the Association. Many important events from 1920 to 1955 have not been mentioned, and neither is the history complete. It continues each day as its work progresses. There are those who believe that the greatest pages in the accounting of its work are yet to come.

Be that as it may, I am aware that the striking reduction in the number of deaths from tuberculosis has not solved the tuberculosis problem. In the same year that North Carolina was proudly recording a death rate of 7.3 per 100,000, it admitted to its four

tuberculosis hospitals 1,984 patients (the fiscal year ending June 30.)

To think of what this means in human terms is not a pleasant pastime. It means mental anguish for not only the 1,984 patients but also for the members of their families. It means broken homes, men unable to support their families, women unable to care for their children, cherished dreams thwarted, vocations interrupted or discontinued. Yet, as pathetic as this can be, tuberculosis must not be considered only in terms of its cost in lives and in human misery. Its cost in money means a serious loss in the economic life of the community.

I do not have the total bill for tuberculosis in North Carolina, but the figures from the State sanatoriums for

treatment are quite striking and revealing. It does not take a mathematician to conceive that at a cost of \$7.58 per day for 1,984 patients, the bill for tuberculosis mounts rapidly. That does not include patients outside the hospitals in county sanatoriums or aid to patients' families.

Even a brief summary of the situation reveals that tuberculosis is clearly a problem today, to which there is no one simple solution. However, if the efforts of the Association in the past are any indication of what can be expected in the future, the North Carolina Tuberculosis Association will be among those that will stand to be counted when victory in the eradication of the disease has been achieved.

THE ELIMINATION OF TUBERCULOSIS FROM NORTH CAROLINA IN THE NEXT SEVENTY-FIVE YEARS

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The North Carolina Tuberculosis Association was founded fifty years ago. At that time the public believed that tuberculosis was inherited and that to plan its control was a Utopian dream. The national death rate in the death registration area was nearly 200 per 100,000, with the major part of the deaths in infants and young adults. In the northeastern states nearly 100 per cent of the population had a positive tuberculin test by the age of 20. There were only a few thousand beds for patients with tuberculosis in the entire United States. The X-ray technique for finding tuberculosis was undeveloped and case-finding clinics as we know them today were non-existent. There were only two encouraging factors: deaths from tuberculosis had been al-

most twice as frequent 50 years before, and a new organization had dedicated itself to the elimination of this dreadful disease.

It is probable that the death rate from tuberculosis in the midwest was never as high as in the northeast. There the standard of living was higher and the opportunity for infection was less than the more crowded northeastern states.

By 1920 in the midwest there were enough sanatorium beds to isolate and treat most of the known active cases. However, many cases were missed until the X-ray method had been perfected and a larger segment of the population X-rayed.

There are no accepted criteria for determining when tuberculosis is under

control in an area. It is suggested that tuberculosis be considered under control when the death rate is five or less per 100,000 of the population and five per cent or less of the school population have positive tuberculin tests. Wisconsin is approaching this goal of control; the death rate for 1952 being 6.5 and tuberculin tests in school children in 1950 five per cent positive. The other midwestern states are approaching the status of control.

When tuberculosis is under control, then we can begin to plan for its eradication. To consider the crude overall death rate alone is misleading. The age and sex groups which harbor the remaining reservoirs of infection must be known.

The most striking feature of the 1950 figures is the steady rise in the Wisconsin death rate for men from a low of 0.1 at the age of 12 to 61.2 at the age of 85. The chief reservoir of tuberculosis infection is now in males over 40 and females over 60 years of age. This is the seed bed from which the next generation will be infected unless all of the active cases are detected, isolated and treated.

Almost as many new cases are being found now as were being found when the death rate was four times as high. Indeed, one may conclude that the present death rate is an artificial condition brought about by early diagnosis and better medical and surgical treatment and is not the result of a natural decrease in either the prevalence or severity of tuberculosis. If treatment should continue to improve we might find ourselves in an anomalous situation in which there were no deaths but with a continuing heavy load of active cases in our hospitals. The greatest defect in our present methods of control is the lack of specific information in regard to the number, age and sex distribution of individuals who have been infected.

The percentage of positive tuberculin reactors is an indirect measure of the amount of undetected open tuberculosis in the community. A positive tubercu-

lin test pinpoints the individuals in the group in which new active cases will develop. A recent conversion from a negative to a positive tuberculin reaction means that there is an active case among the converter's associates. There is a rough correlation between the percentage of the population with positive tuberculin reactions and the number of clinical cases and the number of deaths from tuberculosis.

In 1950 in Wisconsin there was an average rate of 1.7 deaths per 100,000 for the age group under 20 and 26 per 100,000 for the ages of 50 to 80. The school children in Wisconsin have five per cent positive tuberculin reactors, and it is assumed that the older groups have a tuberculin rate of 50 per cent.

The corresponding data from Minnesota for the year 1952 show a death rate of 0.7 per 100,000 in the age group under twenty years of age and in the age group of 50 years and older a rate of 19.4 per 100,000. The tuberculin rate in school children in Minnesota is now about three per cent in contrast to 50 per cent for adults over 50.

Larger samples of tuberculin tests especially among adults of different ages are needed. When the data are available it may be possible to predict from the percentage of positive tuberculin reactors the expected annual number of new cases and of deaths from tuberculosis.

As the program for the elimination of tuberculosis progresses, intensive X-raying of certain segments of the population will probably replace general mass X-ray surveys. Repeated annual X-rays on males over 40 and females over 60 would yield many active cases of tuberculosis, of carcinoma of the lung and of heart disease. Ideally each individual with a positive tuberculin reaction should be X-rayed every year.

The key to the elimination of tuberculosis is the tuberculin test which tells us which individuals have living virulent tubercle bacilli in their bodies. An annual X-ray of tuberculin reactors should detect the disease early enough to cure the patient before the infection

of others. Routine annual X-rays, without tuberculin tests, should be continued for the heavily infected group of individuals who are now 40 years of age or over.

Some may be shocked by the suggestion that 50 years would be required to eliminate tuberculosis from the mid-western states. This is a conservative estimate based upon assumptions such as: no disturbance in our present high standard of living, no catastrophic war or social upheaval, an increase in case-finding programs and a maintenance of the present sanatorium system with its expensive medical and surgical treatment.

The long incubation period for the development of clinical tuberculosis explains the long time required. To this must be added the prolonged persis-

tence of tubercle bacilli in the bodies of those who have been treated and are apparently well. All physicians can recall instances where a person has "cured" in his twenties and has remained well until he relapsed in his seventies. Even more disturbing is the young child who is infected and does not develop clinical tuberculosis until old age.

Leprosy is the only other human disease which has a comparable, long incubation period and a comparable long period of infectivity. Leprosy was eliminated from Europe between 1300 and 1600 A.D. by an intensive program of isolation. It required 300 years to eliminate leprosy from Western Europe. It did not disappear spontaneously and persists even today in tropical countries.

NOTES AND COMMENT

By THE EDITOR

The thousands of chemical products developed to make life simpler may only complicate it unless used with care and intelligence.

The Committee on Toxicology of the American Medical Association has said that there are about a quarter of a million brand name chemical products which may be used in the home, farming, and industry.

All of them may be useful—but handled improperly they may become killers, cripplers, and destroyers of property.

Understanding of the uses and the potential dangers of the wealth of products available is needed to prevent the estimated 3,300 accidental poison deaths which result each year from misuse of chemicals.

The array is so large and so many combinations of chemicals are possible that no complete catalogue of all available products has been made, the committee said.

As part of its campaign to spread information about these products and their hazards, the committee will spon-

sor a symposium on health hazards of chemicals Dec. 29 during the annual meeting of the American Association for the Advancement of Science, in Atlanta, Ga.

Bernard Conley, Ph.D., secretary of the A.M.A. Committee on Pesticides—will be moderator for the symposium. He said the purpose of the meeting is to interpret new knowledge of chemical products to scientists in various fields, so they may in turn use and spread the information.

The committees are working toward development of more intelligent use of chemicals so that their advantages may be enjoyed without dangerous results, Conley said. They do not mean to imply that potentially dangerous chemicals should not be used at all.

"The problem of health hazards has increased with the wider household use of chemicals once found only in industry," he said. "This makes misuse more serious and the necessity for widespread knowledge more urgent.

"There are several thousand basic chemicals used in available products;

these can be mixed in an infinite number of combinations and sold under an infinite variety of fanciful names. The products can be changed in composition without notice and even patent office records don't necessarily show the present composition. Thus, a listing of the contents of all brand-name products is impossible to make."

Conley said while no one may know all about all of these products, the danger of poisoning would be greatly reduced by wider understanding of the problem, reasonable care in using any chemical, and careful attention to label instructions.

On the AAAS meeting symposium devoted to the problem in the home, agriculture, and industry will be Lester M. Petrie, M. D., director, preventable diseases service of the Georgia Department of Public Health, Atlanta; Wayland J. Hayes, M. D., chief of the toxicology section of the Communicable Diseases Center, U. S. Public Health Service, Savannah; Irvin Kerlan, M. D., associate medical director of the federal Food and Drug Administration, Washington; and Mrs. Veronica Conley, assistant secretary of the A.M.A. Committee on Cosmetics, Chicago.

Dr. Vonachen, who is medical director of Caterpillar Tractor Company Peoria, Ill., described how this company preserves the health of management and worker. Besides widespread medical attention to workers and a general health education program for all, there is a special program for executives.

Physicians and psychologists watch over executives for even slight signs of mental or physical illness. Each year, complete voluntary physical examinations are given to executives, with special attention paid to minor changes

in weight, blood pressure, tension headaches, indigestion, and fatigue. Executives get medical counseling on health and job attitudes, family life, and even religious affiliations and recreational habits.

For overweight executives, there is compulsory membership in the "Fat Man's Club." Members are dropped from club lists when company scales register a suitable drop in weight.

Executives are kept healthy, too, by enforced annual vacations.

Executive participation in the health plan has been 99.9 per cent due to "the close kinship developed between the executive and the examining physician."

Dr. Darley said the trend toward preventive medicine may make industry and the community "the near perfect laboratory" for showing the effectiveness of preventive work.

Medicine and industry together can help keep "the gap between what is known and what is done as narrow as possible," he said. "To me, this much is certain: the continued help and interest of industry and business is essential if we are to do our job."

The "shift in emphasis" by management toward "recognizing values and responsibilities" is "one of the most significant achievements of the American business community in the past 20 or 25 years," Mr. Wilson said.

"Business cannot and should not shoulder the main responsibility for aid to education in general or for medical education in particular," he said. "However, we should certainly examine the needs, and then, with all the wisdom and judgment at our command, assume our fair share of responsibility in solving this tremendous problem so important to the health and welfare of our nation."

